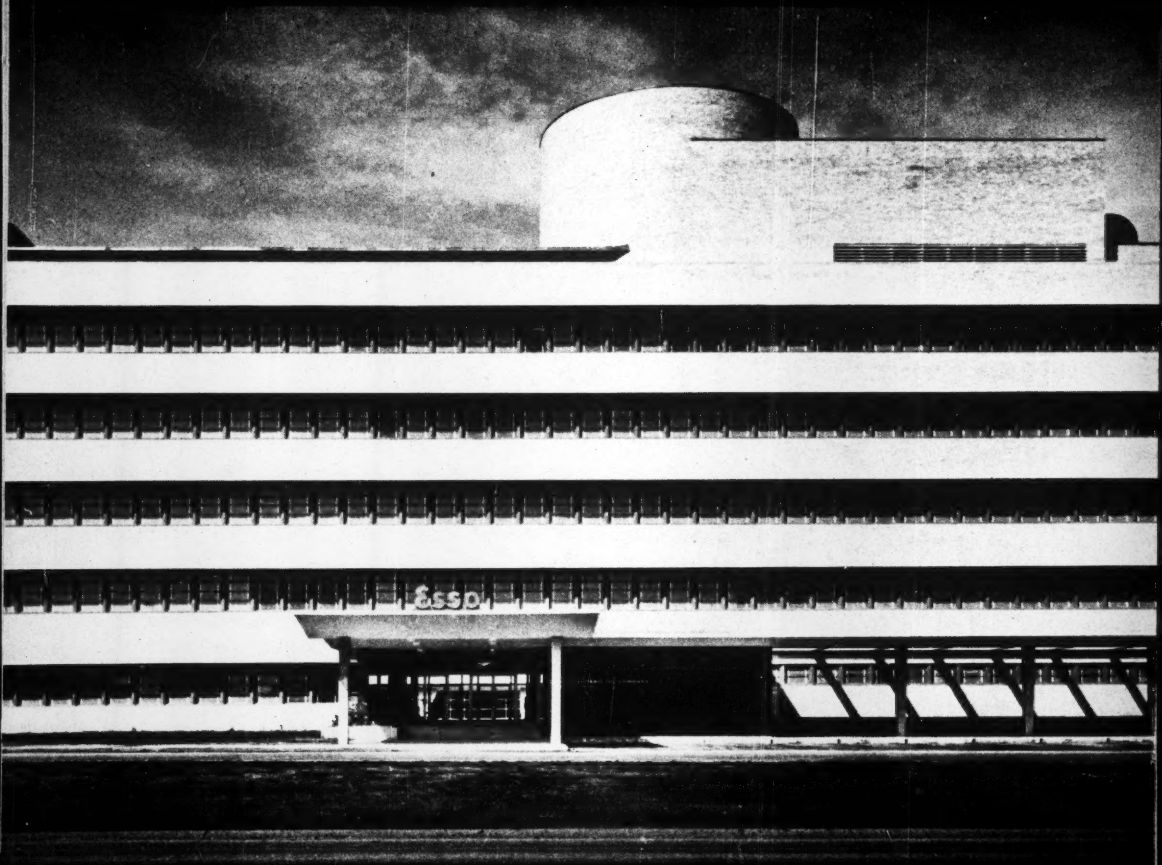
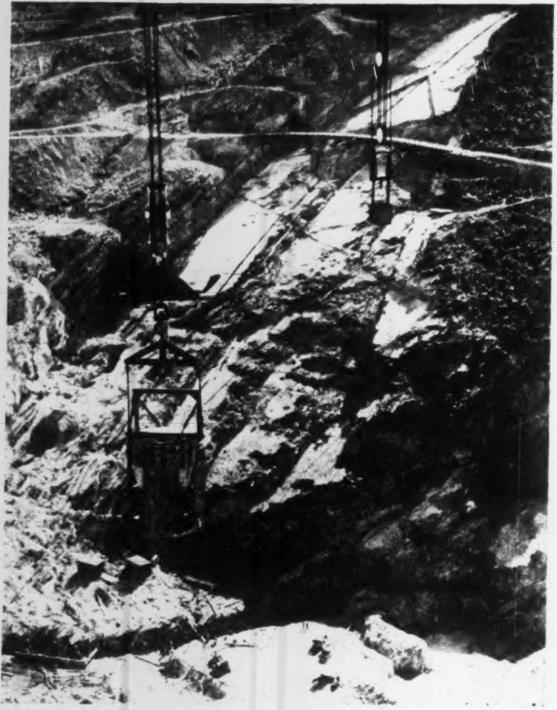
ENGINEERING NEWS-RECORD

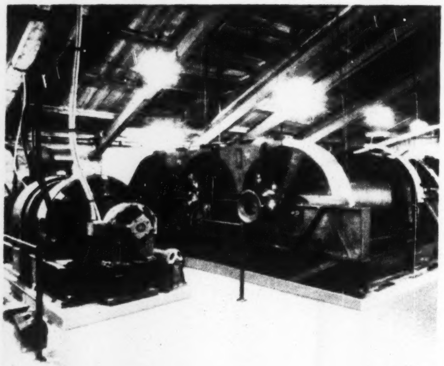


★

★

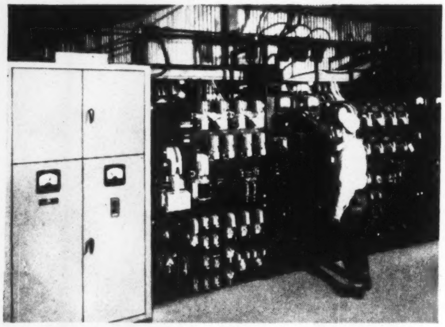
A McGRAW-HILL PUBLICATION





▲ Aerial cableway hoist room showing hoist drums and one of three General Electric motor-generator sets used to drive the powerful G-E 500-hp hoist motors.

◀ Concrete in 8-cubic-yard buckets is moved nearly half a mile on a G-E powered aerial cableway for placing concrete in the construction of Hungry Horse Dam.



Attendant adjusts voltage on G-E switchboard panel. At left is G-E Cabinetrol. Installation provides variable voltage for smooth, accurate speed control of cableway hoists.

BIG LIFT carries concrete across a canyon ... Electrically

G-E Powered Aerial Cableways Vital Link in Concrete Placing at Hungry Horse Dam

Carrying 2,900,000 cubic yards of concrete across a half-mile canyon! It's only one of the big jobs at which the General Shea Morrison Construction Company works night-and-day to complete Hungry Horse Dam on schedule for the Bureau of Reclamation. But they're licking this and the many other problems that face them on the Flathead River site in northwestern Montana. Their answer lies in the use of co-ordinated electric equipment—G-E substations, motors, motor-generators, Cabinetrol*, and switchgear, carefully integrated into one complete system.

Construction equipment electrified by General Electric can provide *you* with new on-the-job flexibility, speed, and safety. *Apparatus Dept., General Electric Company, Schenectady 5, N. Y.*

**Reg. trade-mark of General Electric Co.*

Ask him Today!

Whether you buy or build construction equipment, your G-E representative can show you how to do a better job—at lower cost—by complete electrification. Write him now, and he'll call on you at your convenience.

Electrified Construction
BETTER PRODUCT
LOWER COST

GENERAL ELECTRIC

664-14

USE THIS *New-Billet Bar* FOR FIRM ANCHORAGE!

The size of each Bethlehem Bar is easily determined by means of numeral rolled into the bar.

The improved Bethlehem Reinforcing Bar—that's the bar to specify for firm anchorage in concrete!

It has specially designed lugs which meet the deformation requirements of ASTM Specification A305. The lugs are alternately sloped and uniformly spaced. Their gripping action in the concrete means less slips at working loads—maximum bond strength—firm anchorage. Thus wide tensile cracks in the concrete are less likely to occur.

The improved Bethlehem Bar is made from new-billet steel which meets ASTM Specification A15. Conforming to Simplified Practice Recommendation R26-50, the weight of each bar is designated by number. There is no change in either the standard unit weights or nominal cross-sectional areas—hence there is no need to alter basic design practices. All sizes of the Bethlehem Bar are rolled as round sections. The nominal round diameters, plus the new and old size designations, are shown in the table below.

We have a reinforcing bar descriptive sheet which you'll want to keep on hand for reference. The nearest Bethlehem sales office will gladly send you a copy. Or write to us at Bethlehem, Pa.

New Standard Size Markings of Bethlehem Reinforcing Bars

New No.	3	4	5	6	7	8	9	10	11
Nominal Round Diameter	.375	.500	.625	.750	.875	1.000	1.128	1.270	1.410
Old Size Designation, Inches	⅜φ	½φ	⅝φ	¾φ	⅞φ	1φ	1□	1⅛□	1¼□

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

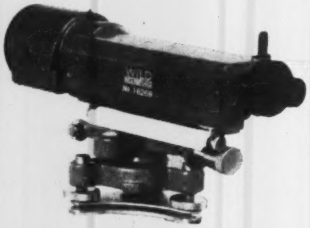
On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BETHLEHEM STEEL

BETHLEHEM REINFORCING BARS

BE ON THE LEVEL

WILD
HEERBRUGG



WILD N III

Precision Level WILD N III. A modern fast-working level with highest obtainable accuracy. Height readings to .01 millimeter, also special execution available with reading directly to 1/1000th of an inch. The ideal job-doer for first order levelling, assembling heavy machinery, measuring deformations, verifying rises or depressions in buildings.

FOR THE FULL STORY WRITE OR PHONE
FOR BOOKLET NR 125

HENRY WILD
SURVEYING INSTRUMENT SUPPLY CO.
OF AMERICA, INC.
26 COURT ST., BROOKLYN 2, N. Y. TRiangle 5-0644

ENGINEERING NEWS-RECORD

ABP Member ABC

Volume 146 JANUARY 25, 1951 No. 4

WALDO G. BOWMAN
Editor

FEATURES OF THIS ISSUE

Old Spans Out, New Spans In; on the ICRR 32
First Privately Owned Reactor has Built-in Safety Features 36
Old but not Unwanted—Dam Gets Seepage Repairs 39
Water Co. Asks Rate Boost for More Than $1 Million 41
Office Building Designed for Flexibility 42
City Financing Sought for Off-Street Parking 44
Acid Chemical Wastes Made Harmless 47
Perspective—Letter from California: Flood Control 96

DEPARTMENTS

Construction Week 17
Construction Trends 19
Editorials 21
News of the Week 23
Notes on Legal Decisions 48
Developments Abroad 50
Municipal Affairs 52
Men and Jobs 53
Education and Research 55
Meetings 57
Obituaries 58
Unit Prices 59
Construction Reports 60
New Products 84

Number of copies of this issue printed 45,942

Managing Editor—Eugene E. Halmos, Jr.

Associate Editors—*New York*, V. T. Boughton (senior associate), R. H. Dodds, F. S. Merritt; *Chicago*, J. R. Carr; *San Francisco*, L. L. Wise; *Washington*, V. B. Smith.

Assistant Editors—*New York*, Melvin Dean, Arthur J. Fox, Jr., T. D. MacGregor, D. E. Reilly.

Staff Assistants—Mary Kiernan, *Research*; Ethel Lyon, *Makeup*; E. E. Thorp, *Printing*; Louise Barker, Ruth McCarthy, Madalene Smith, *Editorial*.

Business News—Elsie Eaves, *Manager*; E. M. Huber, Jane Lucia, J. A. Mahoney, M. W. Roessler, M. Wetzel.

Contributing Editors—N. A. Bowers, Edward J. Cleary.

Domestic News Bureaus—Atlanta, Chicago, Cleveland, Detroit, Houston, Los Angeles, San Francisco, Washington. Correspondents in 71 cities in the United States, Canada and Mexico.

Foreign News Bureaus—London, Frankfurt, Paris, Moscow, Tokyo, Bombay, Melbourne, Rio de Janeiro, Mexico City, *Correspondents*—Athens, Rome, Caracas, Buenos Aires, Santiago, Shanghai, Zurich, Johannesburg and 40 other cities.

ROBERT F. BOGER
Publisher

January 25, 1951 **ENGINEERING NEWS-RECORD** **Vol. 146—No. 4**

Member ABC and ABP

Published weekly by McGraw-Hill Publishing Company, Inc., James H. McGraw (1860-1948), Founder. **Publication Office, 99-129 North Broadway, Albany 1, N. Y.**

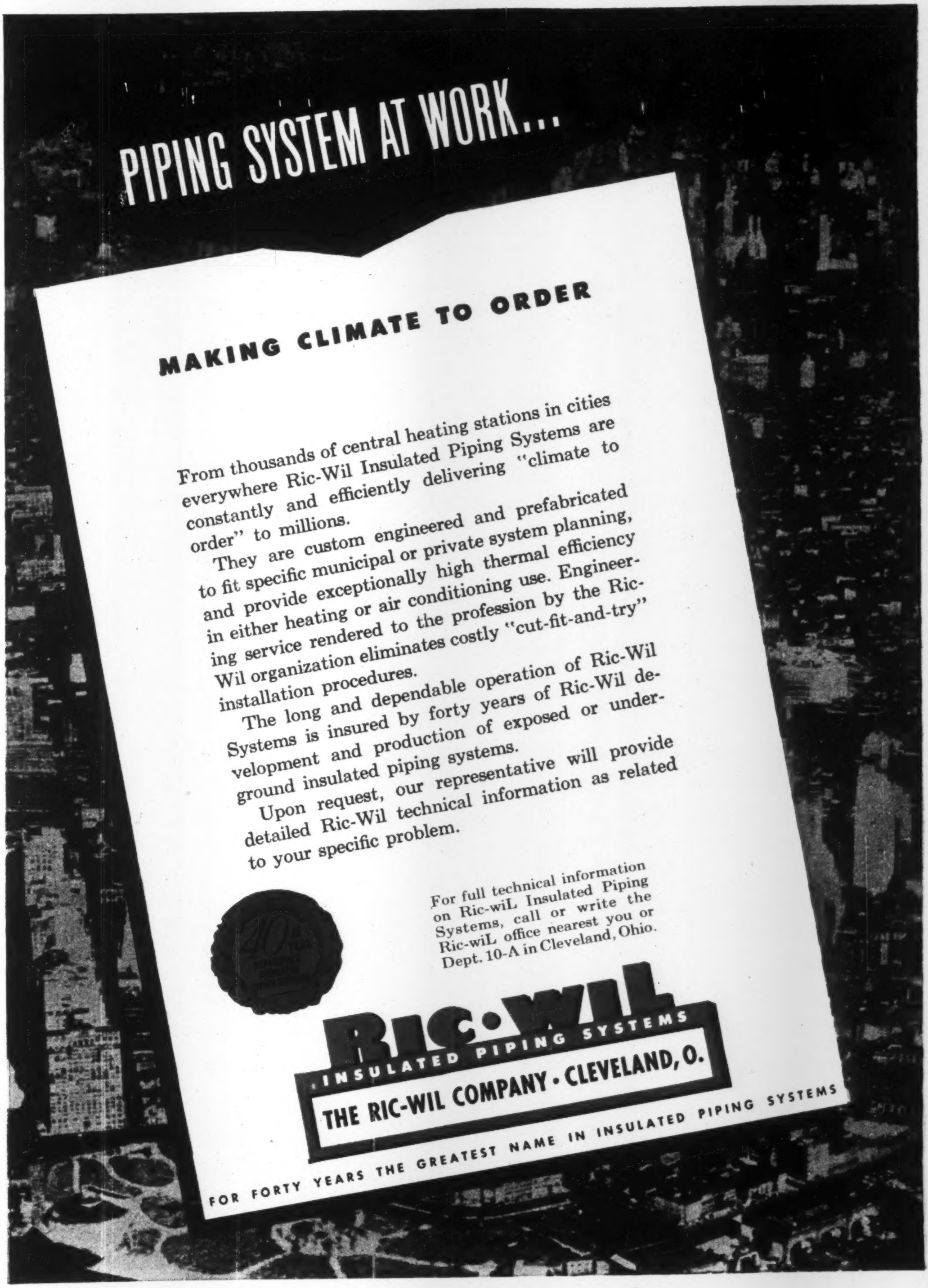
Executive, Editorial and Advertising Offices: McGraw-Hill Building, 330 W. 42nd St., New York 18, N. Y. Curtis W. McGraw, President; Willard Chevalier, Executive Vice-President; Joseph A. Gerardi, Vice-President and Treasurer; John J. Cooke, Secretary; Paul Montgomery, Senior Vice-President, Publications Division; Ralph B. Smith, Editorial Director; Nelson Bond, Vice-President and Director of Advertising; J. E. Blackburn, Jr., Vice-President and Director of Circulation.

Subscriptions: Address correspondence to Engineering News-Record—Subscription Service, 99-129 N. Broadway, Albany 1, N. Y., or 330 W. 42nd St., New York 18, N. Y. Allow ten days for change of address.

Please indicate position and company connection on all subscription orders.

Single copies 35¢. Subscription rates—United States and possessions, $6.00 a year; $9.00 for two years; $12.00 for three years. Canada, $8.00 a year; $12.00 for two years; $16.00 for three years. Pan American countries, $10.00 a year; $16.00 for two years; $20.00 for three years. All other countries, $20.00 a year; $30.00 for two years; $40.00 for three years. Entered as second class matter October 29, 1936, at the Post Office at Albany, N. Y., under Act of Mar. 3, 1879. Printed in U. S. A.

Copyright 1951 by McGraw-Hill Publishing Co., Inc. All Rights Reserved.



PIPING SYSTEM AT WORK...

MAKING CLIMATE TO ORDER

From thousands of central heating stations in cities everywhere Ric-Wil Insulated Piping Systems are constantly and efficiently delivering "climate to order" to millions.

They are custom engineered and prefabricated to fit specific municipal or private system planning, and provide exceptionally high thermal efficiency in either heating or air conditioning use. Engineering service rendered to the profession by the Ric-Wil organization eliminates costly "cut-fit-and-try" installation procedures.

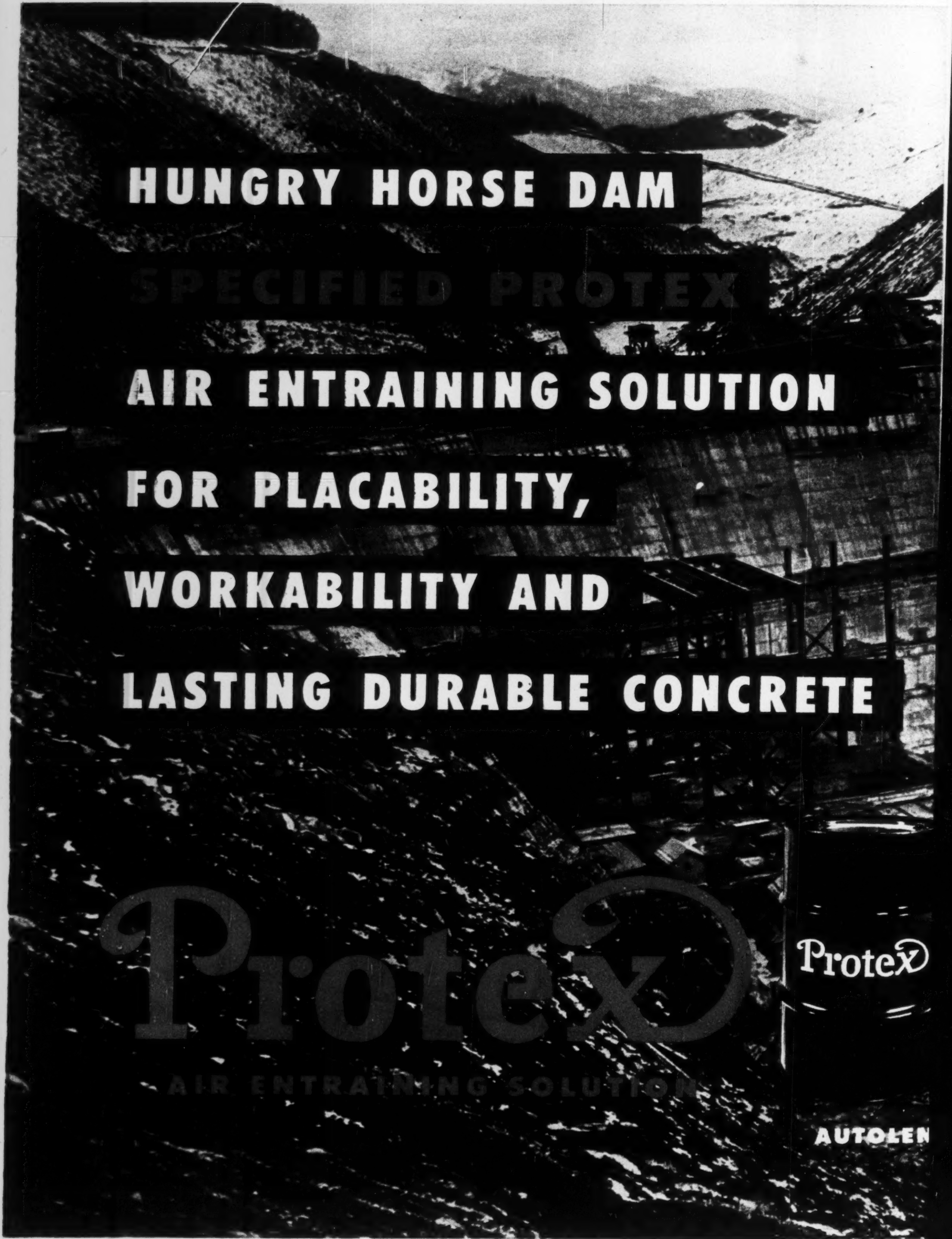
The long and dependable operation of Ric-Wil Systems is insured by forty years of Ric-Wil development and production of exposed or underground insulated piping systems.

Upon request, our representative will provide detailed Ric-Wil technical information as related to your specific problem.

For full technical information on Ric-wiL Insulated Piping Systems, call or write the Ric-wiL office nearest you or Dept. 10-A in Cleveland, Ohio.

RIC-WIL
INSULATED PIPING SYSTEMS
THE RIC-WIL COMPANY • CLEVELAND, O.

FOR FORTY YEARS THE GREATEST NAME IN INSULATED PIPING SYSTEMS



HUNGRY HORSE DAM

SPECIFIED PROTEX

AIR ENTRAINING SOLUTION

FOR PLACABILITY,

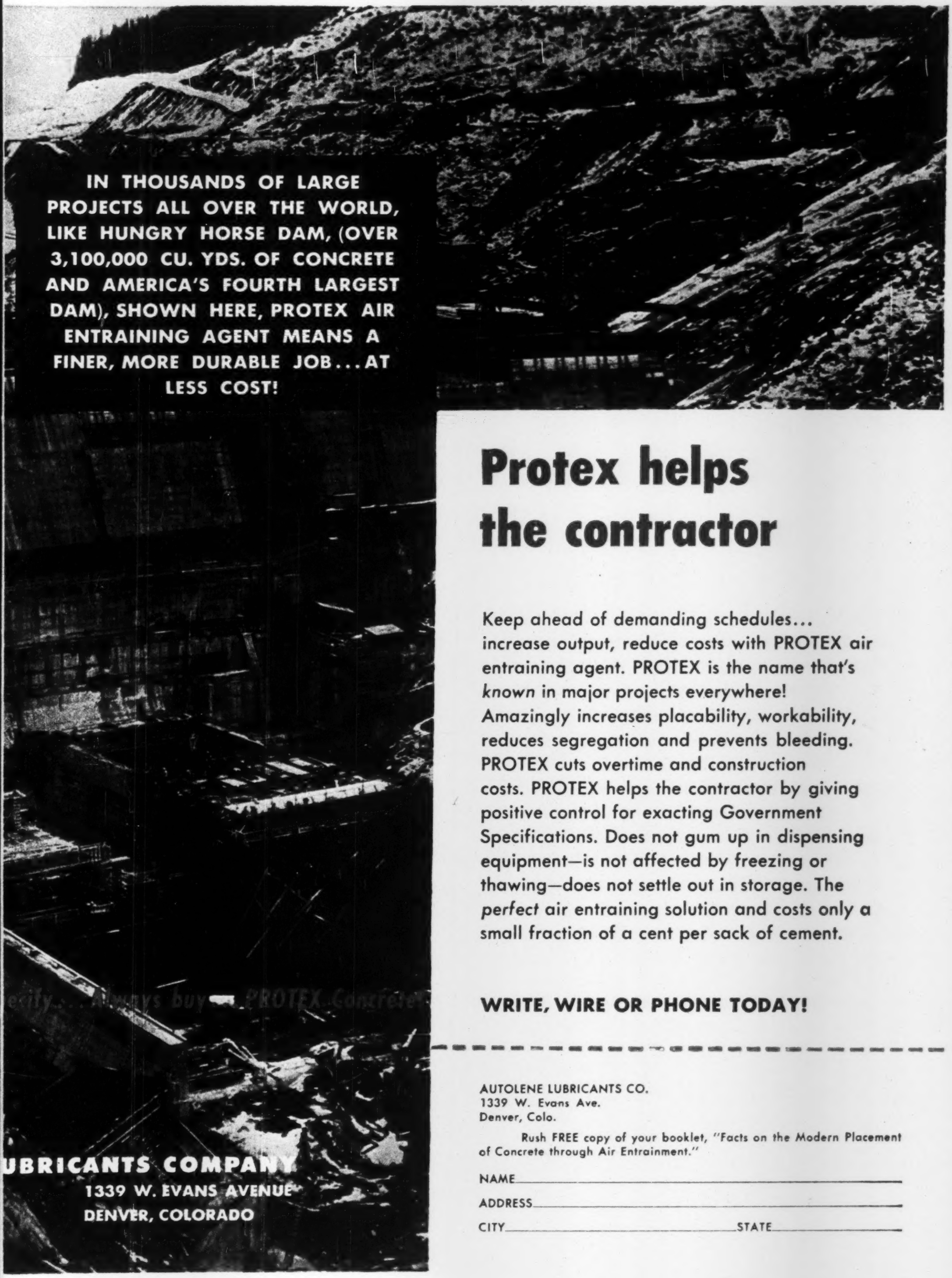
WORKABILITY AND

LASTING DURABLE CONCRETE

Protex

AIR ENTRAINING SOLUTION

AUTOLEN



IN THOUSANDS OF LARGE PROJECTS ALL OVER THE WORLD, LIKE HUNGRY HORSE DAM, (OVER 3,100,000 CU. YDS. OF CONCRETE AND AMERICA'S FOURTH LARGEST DAM), SHOWN HERE, PROTEX AIR ENTRAINING AGENT MEANS A FINER, MORE DURABLE JOB . . . AT LESS COST!

Protex helps the contractor

Keep ahead of demanding schedules... increase output, reduce costs with PROTEX air entraining agent. PROTEX is the name that's *known* in major projects everywhere! Amazingly increases placability, workability, reduces segregation and prevents bleeding. PROTEX cuts overtime and construction costs. PROTEX helps the contractor by giving positive control for exacting Government Specifications. Does not gum up in dispensing equipment—is not affected by freezing or thawing—does not settle out in storage. The *perfect* air entraining solution and costs only a small fraction of a cent per sack of cement.

WRITE, WIRE OR PHONE TODAY!

UBRICANTS COMPANY
1339 W. EVANS AVENUE
DENVER, COLORADO

AUTOLENE LUBRICANTS CO.
1339 W. Evans Ave.
Denver, Colo.

Rush FREE copy of your booklet, "Facts on the Modern Placement of Concrete through Air Entrainment."

NAME______________________________

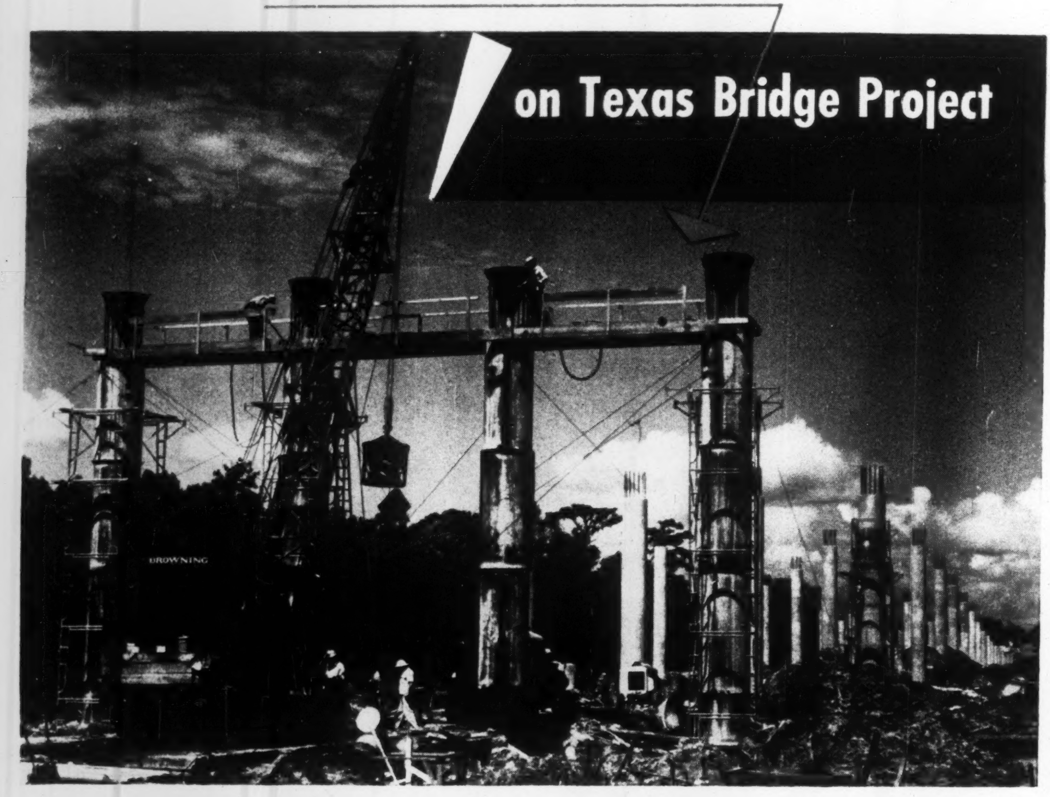
ADDRESS______________________________

CITY____________________STATE__________

Gulf Products and Fine Service

keep equipment rolling

on Texas Bridge Project



Texas Construction Company, Dallas, Texas, has the contract for the substructure of the Neches River Bridge at Beaumont, Texas. This bridge will be part of the new super-highway #90 now under construction.

"Gulf quality lubricants and fuels, plus Gulf's ability to get these products to us when and where needed, have kept all units operating smoothly on the job and have helped us steer clear of costly mechanical delays," says W. E. Bishop, Job Superintendent of Texas Construction Company.

Leading contractors on all types of construction projects find it is good profit insurance as well as real economy to use Gulf lubricants and fuels. Always of the same uniform high quality, they work as a team to help you get more hauls, fewer overhauls.

Write, wire or phone your nearest Gulf office today and arrange to use Gulf products on your next job. They are quickly available to you through more than 1200 warehouses.

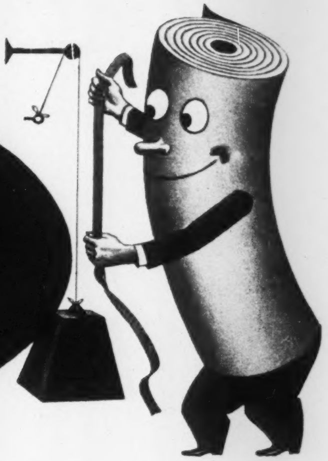
Gulf Oil Corporation · Gulf Refining Company
GULF BUILDING, PITTSBURGH, PA.
Sales Offices - Warehouses
Located in principal cities and towns throughout
Gulf's marketing territory

FIFTY YEARS OF SERVICE
1901 GULF 1951
PETROLEUM AND ITS PRODUCTS

UNIFORMITY

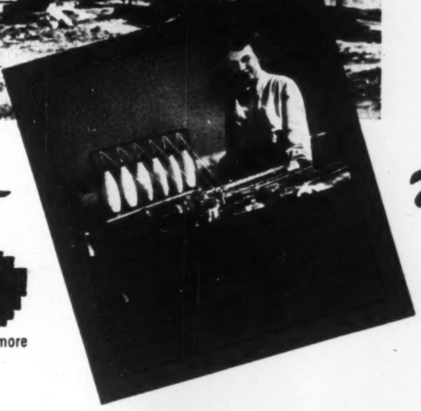
[illegible]

TARPAULINS



MT. VERNON EXTRA

Gives You Greater Fabric Uniformity



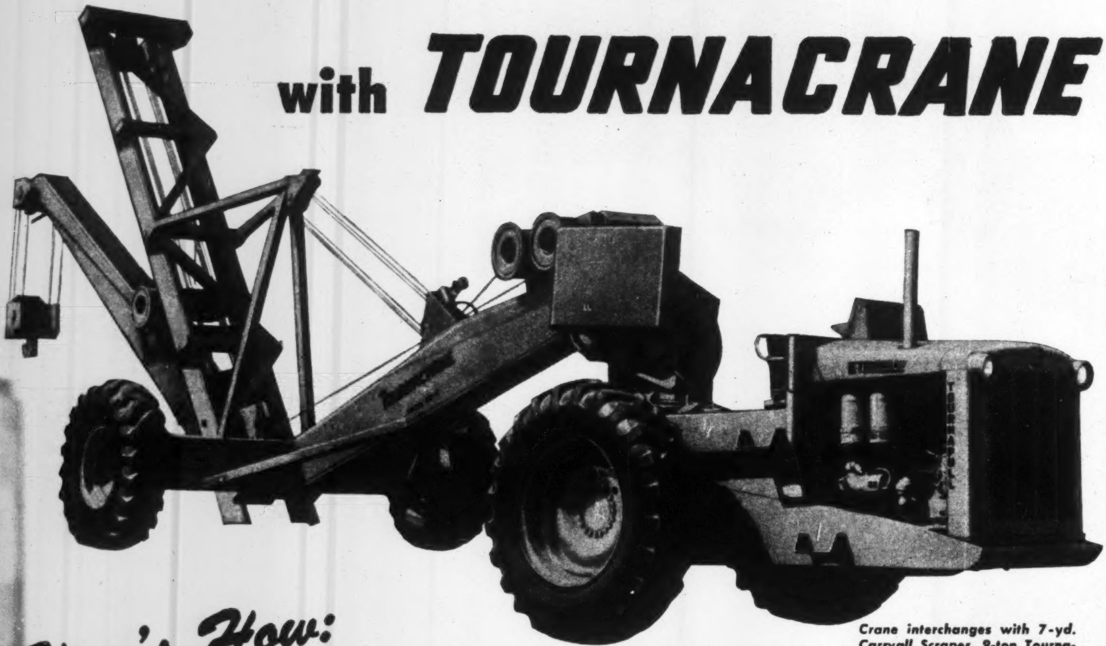
The greater uniformity of Mt. Vernon Extra Duck assures you the two most important qualities you want in tarps — top protection and top wear. You'll find your repair and replacement costs reduced considerably.

Mt. Vernon - Woodberry Mills

TURNER HALSEY
COMPANY
Selling TH *Agents*
40 WORTH ST · NEW YORK

Branch Offices: Chicago • Atlanta • Baltimore
Boston • Los Angeles • Akron

Texas Delivery Service goes with TOURNACRANE



Crane interchanges with 7-yd. Carryall Scraper, 9-ton Tournarocker, 10-ton Tournahauler . . . can be equipped with Bulldozer blade, pulls 10-ton logging arch.

Here's How:

To broaden their lifting service, Texas Delivery Service of Dallas added a Tournacrane to their fleet last spring. They selected Tournacrane because of its ability to travel and handle lifts on any kind of footing . . . pavement, blacktop, gravel, cinders, dirt, mud or soft fill. In addition, they liked Tournacrane's special ability to move loads horizontally on a low boom — through windows, doorways, into box cars, through marine cargo hatches, etc. This horizontal handling of loads under low clearance obstructions is particularly adaptable to certain types of steel erection, especially in structural repairs requiring fast, accurate load placing.

On their many Tournacrane lifting assignments, some of which are illustrated here, other advantages proved useful. Since the Tournacrane needs no outriggers, even with maximum loads, it can travel with heavy lifts suspended much more readily than ordinary cranes.

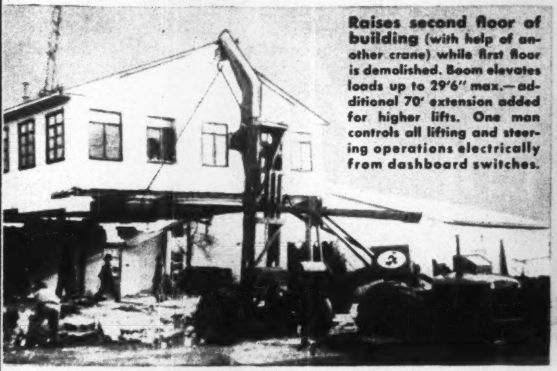
The 783 square inches of braking surface on *each* of 4 wheels gave sure footed control for lifting, spotting and accurately placing loads. Low center of gravity on 16' wheelbase, with rigs' 23,090-lb. weight, increases stability for accurate load control. Individual electric motors, controlled by push-button switches from the dashboard, contribute to fast, smooth, load handling. Powerful motor brakes safely and effectively hold any load crane can lift.

Your LeTourneau Distributor has all the facts on versatile Tournacranes. In addition to the 7-ton capacity "D", there is a larger 15-ton capacity "C", and a 30-ton capacity "B". If you have lifting problems, ask him to analyze Tournacrane's ability to help you. It will pay you to write or call him TODAY.

LeTOURNEAU
LeT
EQUIPMENT

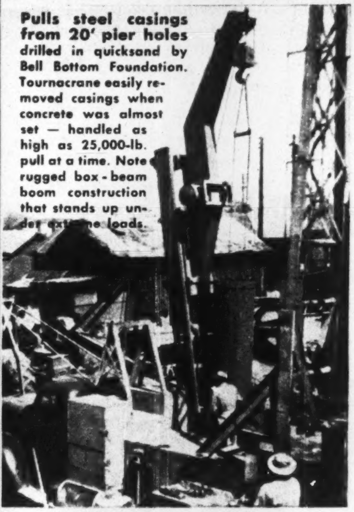
R. G. LeTOURNEAU, INC.
Peoria, Illinois

anywhere to handle wide variety of lifts



Raises second floor of building (with help of another crane) while first floor is demolished. Boom elevates loads up to 29'6" max.—additional 70' extension added for higher lifts. One man controls all lifting and steering operations electrically from dashboard switches.

Sets transformer and 12,000-lb. boiler into school basement. Time involved for placing 5 pieces, including 5-mile travel, was less than 3 hours. 90° turn gives operator freedom to maneuver easily. Machine can lift and move over irregular terrain, lift safely on soft or muddy footing.

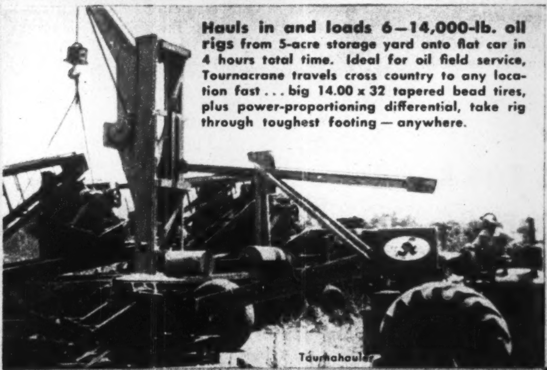


Pulls steel casings from 20' pier holes drilled in quicksand by Bell Bottom Foundation. Tournacrane easily removed casings when concrete was almost set — handled as high as 25,000-lb. pull at a time. Note rugged box-beam boom construction that stands up under extreme loads.

Model EC-7 Specifications

- Capacity 7 tons — 122 h.p. Diesel
- Lifts 29'6" max., reaches 31' horizontally
- 5 speeds forward to 28 m.p.h.
- Height 33' max. 8'9" min.
- Length 56'2" max. 26'3" min.
- 90° turn — min. turning radius 14'7"
- Power-proportioning differential
- 4-wheel air brakes, 3132 sq. in. total braking surface
- 14.00 x 32 tapered bead tires (standard) (18.00 x 25 optional)
- Weight approx. 23,090 lbs.

Lifts overpass structures without outriggers — using 70' boom. Sets beams on supports—lifts totaled 50,000 lbs. Rig goes anywhere . . . on pavement . . . through mud, sand . . . onto rail right-of-way . . . follows or crosses tracks with no damage to roadbed or tires. Travels at fast 28 m.p.h. pace, job-to-job.



Hauls in and loads 6—14,000-lb. oil rigs from 5-acre storage yard onto flat car in 4 hours total time. Ideal for oil field service, Tournacrane travels cross country to any location fast . . . big 14.00 x 32 tapered bead tires, plus power-proportioning differential, take rig through toughest footing — anywhere.

Tournahauler

Hoists 14,000-lb. machine over a high wall, then lowers it into place at new building construction. Machine was too tall to go through doors, was therefore lifted into place before roof went on. Loading to truck, hauling, unloading, placing, plus 10-mile travel took only 3 hours time for versatile Tournacrane.

Tournacrane Company Trademark Reg. U.S. Pat. Off. R219

Mail Today!

R. G. LeTOURNEAU, Inc., Peoria, Illinois

Please send complete specifications on ☐ 7-ton Tournacrane ☐ 15-ton Tournacrane ☐ 30-ton Tournacrane. ☐ Also give price, delivery information.

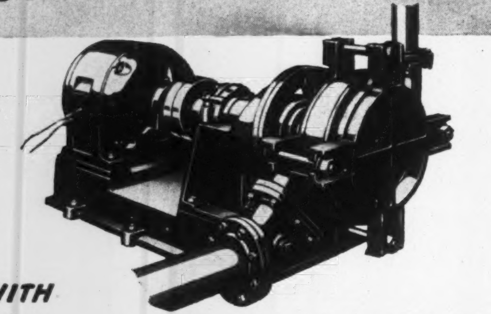
NAME____________ TITLE____________

COMPANY____________

STREET____________ CITY____________ STATE____________

Type of work to be handled____________

Longer Hours of...
CONTINUOUS SERVICE



WITH A MORRIS TYPE R SLURRY PUMP

The 4 features of the Morris Type R Slurry Pump mean low-cost operation . . . minimum "lay up" time.

① **Easily dismantled**—Impeller and shaft sleeve are renewable without disturbing piping or bearings.

Four easy-to-get-at outside clamping bolts hold impeller, liner, shell and cover firmly in place.

② **Simpler design**—The Morris Type R Slurry Pump has no troublesome internal bolts or studs.

Gland is under suction pressure only. Hence, it's less vulnerable to abrasive solids . . . less subject to packing troubles.

Four adjusting screws close the worn clearances on the suction side of impeller. This adjustment moves the entire rotating assembly as a unit.

③ **Corrosion-abrasion resistant**—You may have the Morris Type R with its moving parts in any of various metal alloys, depending upon the kind of slurry you handle. Parts are quickly interchanged.

④ **Shell is interchangeable for right or left-hand rotation**—Permits 72 different combinations of suction and discharge nozzles.

⑤ **FREE TECHNICAL SERVICE**—Morris Engineers have been building pumps for more than 80 years. They will be glad to recommend the pump best suited to your needs. No charge or obligation.

FOR LESS TROUBLE . . .
LESS MAINTENANCE . . .
LESS LAY-UP TIME . . .
and LONGER HOURS OF CONTINUOUS OPERATION

Specify MORRIS TYPE R SLURRY PUMP

MORRIS MACHINE WORKS
Baldwinsville, N. Y.
Branch Offices in Principal Cities

MORRIS *Centrifugal Pumps*

NEWS BRIEFS

Overhead moving—When the Pittsburgh offices of several U. S. Steel subsidiaries move into new quarters in the 525 William Penn Place Building there will be more than 1,200 rooms full of furniture and equipment to be transferred from the Frick Building and annex, and the Carnegie Building. The move is just across the street but that street is the busy Fifth Ave. So, to avoid interference with traffic, the great hegira will take place over a special bridge prepared by the American Bridge Co. to connect the 12th floor of the Carnegie building with the corresponding floor of the Penn Place Building.

It will be a simple truss bridge with two main lattice trusses 8 ft. deep and 5 ft. from center to center and almost 7 ft. wide, with a 1.3 percent downgrade to the new building. This will facilitate moving loaded dollies by hand. To raise the bridge two wooden false-work towers will be used. The temporary bridge is designed to support, in addition to its dead load, a live load of 100 psi.

Tax reduction after 200 years—In the face of rising costs and for the first time in 201 years of its history, the city council of Alexandria, Va., has ordered a large reduction in taxes. The council has passed five ordinances repealing or reducing the levies.

New administration for Independence Hall—On Jan. 2 the Department of the Interior, through the National Park Service, assumed administrative maintenance and operation of the buildings and grounds of the group of structures at Independence Hall. However, the city of Philadelphia retains its ownership of the property. A federal appropriation of $150,000 has been made available for administration of Independence Hall, Congress Hall, old City Hall, and associated historic objects. This group is associated with the Declaration of Independence and the adoption of the Constitution. It also was the seat of the government of the United States from the beginning up to the year 1800.

Chief Joseph Builders—The four construction companies which have been awarded a $25,967,921 contract by the Corps of Engineers for the second-stage construction of Chief Joseph Dam on the Columbia River in eastern Washington below Grand Coulee Dam have organized as Chief Joseph Builders. They are the L. E. Dixon

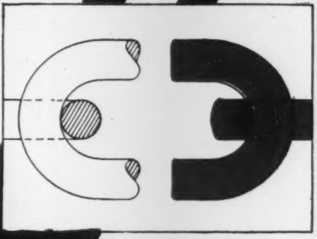
Keep your Dragline Buckets on the job with

ESCO WORK-PROVED REPAIR PARTS

A reserve stock of ESCO repair parts is better than money in the bank. Especially now, when they are becoming hard to obtain, these parts actually are insurance against lost time. Typical of these parts are *ESCO* flat side drag chains, composed of solid links, with extra steel where wear is greatest. They don't have to "take a seat".

Protect yourself now against "down time" for your equipment by anticipating your requirements for the next several months. Your nearest *ESCO* representative will give you details on *ESCO* repair parts; or fill in and mail the coupon for Catalog 108H, which contains the detailed information you need.

With conventional round link chain, contact is at one restricted point only, which wears chain rapidly and reduces strength.



Flat surface of ESCO links distributes wear over maximum area. With wear decreased correspondingly, chain outlasts other types.

Other ESCO Accessories for Greater Production

- Box-type Points and Adapters
- Hoist Chains
- Pear Links
- Rope Sockets
- Weld-on Tooth Points
- Spreader Bars
- Drag Cluster Rigging

ESCO Repair Links for Rugged Service

ESCO

DIPPER AND DRAGLINE BUCKETS

ELECTRIC STEEL FOUNDRY
2167 N. W. 25th Avenue, Portland 10, Oregon

SALES OFFICES AND WAREHOUSES

CHICAGO, ILLINOIS
EUGENE, OREGON
HONOLULU, T. H.
HOUSTON, TEXAS
SPOKANE, WASHINGTON
SEATTLE, WASHINGTON
LOS ANGELES, CALIFORNIA
NEW YORK CITY, NEW YORK
SAN FRANCISCO, CALIFORNIA
CENTRALIA, PENNSYLVANIA

IN CANADA — ESCO LIMITED, VANCOUVER, B. C.

MANUFACTURING PLANTS

DANVILLE, ILLINOIS   PORTLAND, OREGON   VANCOUVER, B. C.

Representatives in all Major Cities

ELECTRIC STEEL FOUNDRY
2167 N. W. 25th Avenue, Portland 10, Oregon

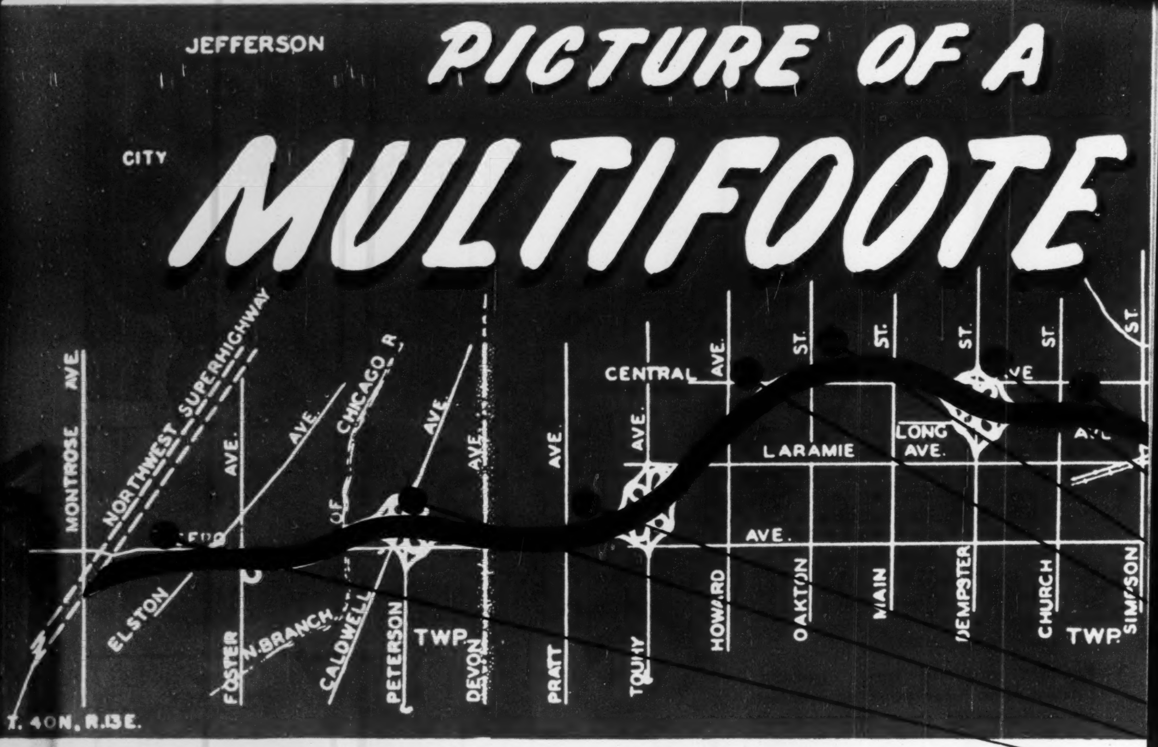
Please send catalog 108H to:

Name______________________________

Address_______________________ Zone______

City_______________________ State______

PICTURE OF A MULTIFOOTE


JEFFERSON
CITY
MONTROSE AVE
NORTHWEST SUPERHIGHWAY
AVE.
AVE.
CHICAGO R
AVE.
AVE.
AVE.
CENTRAL
AVE.
ST.
ST.
ST.
ST.
ST.
LONG AVE.
LARAMIE
AVE.
ELSTON
FOSTER
N. BRANCH
OF
CALDWELL
PETERSON
TWP.
DEVON
PRATT
TOUHY
HOWARD
OAKTON
MAIN
DEMPSTER
CHURCH
TWP.
SIMPSON
T. 40N., R.13E.

● OF the 19 pavers on Edens Superhighway, 13 are MultiFootes!

EDENS HIGHWAY stretches north out of Chicago and will eventually be the main artery to Milwaukee and will be one of the most modern of America's Freeways.

The most northerly operation is that of the Contracting and Materials Co. of Chicago who purchased a Blaw-Knox package including Blaw-Knox Forms, Spreader, Finisher and MultiFoote Duomix Paver for their section of this job.

On the contracts that you have coming up this spring and summer you want dependability — ability to keep a running—freedom from down time.

Thirteen out of 19 is quite a percentage. Add this to the world records recently established by MultiFoote 34-E Singlemix and Duomix pavers on the Turnpike. Performance is the best testimonial for any equipment.

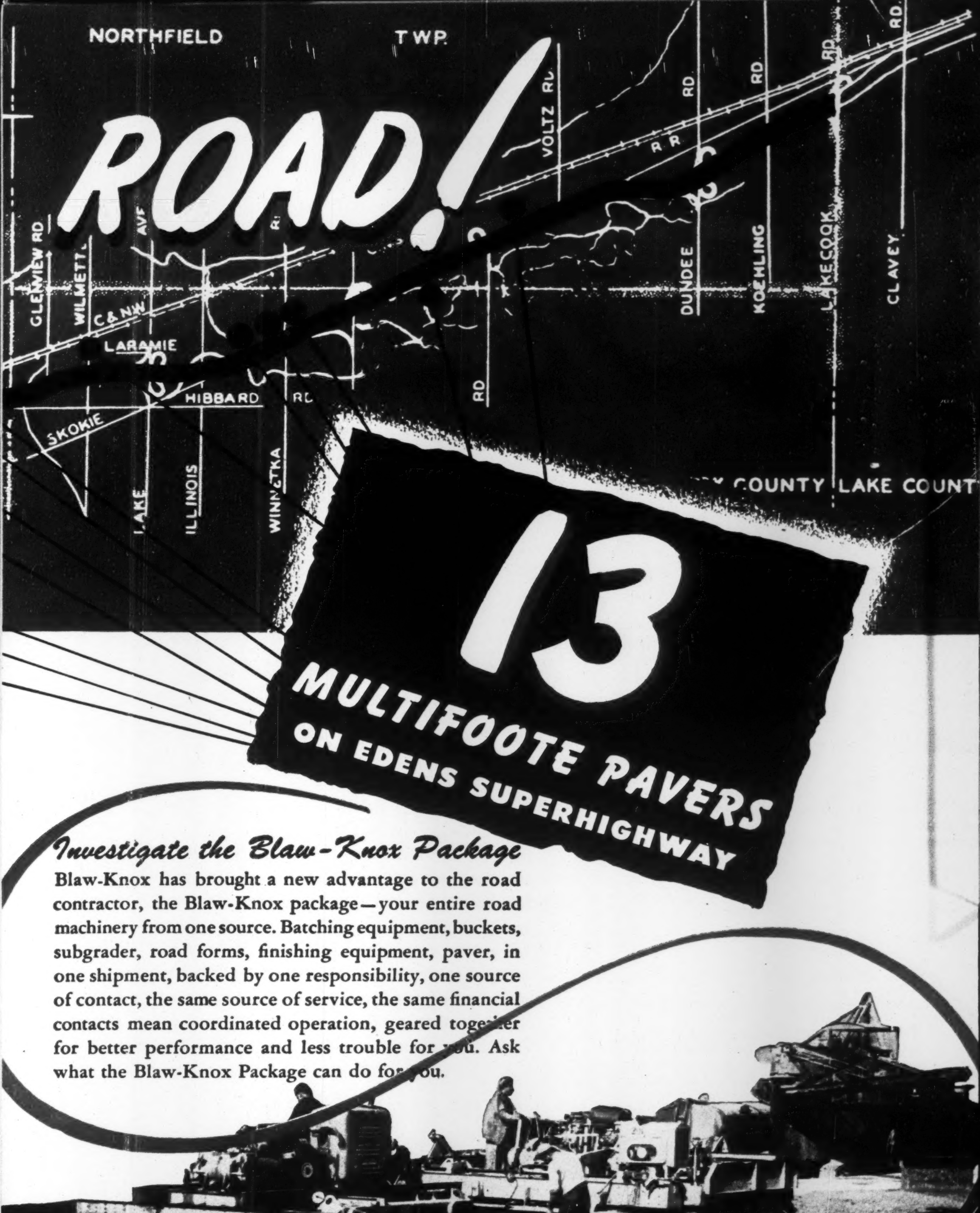
BLAW-KNOX DIVISION OF Blaw-Knox Company,
Farmers Bank Building,
Pittsburgh 22, Pa.

The Foote Co., Inc.
Subsidiary of Blaw-Knox Co.,
Nunda, N. Y.

New York • Chicago • Philadephia • Birmingham • Washington • San Francisco • *Representatives in Principal Cities*

BLAW-KNOX ★ FOOTE CO

Complete Package of Concrete Paving Equipment


NORTHFIELD
TWP.
VOLTZ RD
RD
RD
RD
RD
R R
GLENVIEW RD
WILMETTE
AVE
C&NW
LARAMIE
HIBBARD
RD
SKOKIE
LAKE
ILLINOIS
WINNETKA
RD
DUNDEE
KOEHLING
LAKECOOK
CLAVEY
COUNTY
LAKE COUNT

ROAD!

13 MULTIFOOTE PAVERS ON EDENS SUPERHIGHWAY

Investigate the Blaw-Knox Package

Blaw-Knox has brought a new advantage to the road contractor, the Blaw-Knox package—your entire road machinery from one source. Batching equipment, buckets, subgrader, road forms, finishing equipment, paver, in one shipment, backed by one responsibility, one source of contact, the same source of service, the same financial contacts mean coordinated operation, geared together for better performance and less trouble for you. Ask what the Blaw-Knox Package can do for you.

Rockford, Ill. completes 3 times as many sewer jobs *at 1/4 the cost!*

C. A. Larson...

Supt. Sewers, Rockford, Ill., reports it used to take *3 men a full day to complete ONE sewer repair by hand.* Now a high-speed BANTAM® clamshell on rubber tires completes 3 to 4 SERVICE JOBS PER DAY — including breaking through 20' to 30' of pavement and digging down 10' to 12' to make the repair. Versatile Bantam also keeps busy stockpiling and loading sand, cinders, aggregate . . . cleaning creek beds . . . breaking ice gorges . . . *has cut sewer department operating costs "at least 75%".* Your city, too, can save money with a low-cost BANTAM.

CHECK BANTAM'S cost-saving features

- **3-ton — 3/8 yd. capacity, with 1/2 yd. re-handling bucket, 1 1/2 yd. snow bucket.**
- **Mounts on new or used tandem axle truck.**
- **Goes anywhere, anytime over city streets, paved roads or cross country.**
- **Simple, fast, RUGGED. Low maintenance!**

Clip... Mail today!

SCHIELD BANTAM CO., 201 Park St., Waverly, Iowa SB-MU-1

Send details on truck-mounted Bantam

☐ Shovel ($6195)*
☐ Hoe ($6040)*
☐ Pile Driver ($6110)*
☐ Crane ($5520)*
☐ Dragline ($5940)*
☐ Clamshell ($6080)*

Title

Name

Company

Address

City State

*Less truck, F.O.B. Waverly, Iowa. Prices subject to change without notice.

SCHIELD BANTAM

Costs less . . . goes anywhere fast

GETS MORE JOBS DONE

Co. of San Gabriel, Calif.; Hunkin-Conkey Construction Co., Cleveland; the Arundel Corp., Baltimore, and the American Pipe & Construction Co., Southgate, Calif. The contractors will have project headquarters at Bridgeport, Wash.

Finders and keepers—Paper money cannot be considered waste paper, and therefore the $7,220 in U. S. currency discovered by five waste collectors in the village of Oakwood, Ohio, suburb of Dayton, does not belong to the village, according to a recent ruling by the Montgomery County Common Pleas Court. The town manager sought to recover the money for Oakwood, but the judge ruled that the five rubbish men were entitled to the funds, particularly since the householder where the money was picked up disclaimed any knowledge as to ownership. The court pointed out that the money was not found in the course of the workers' duty because it was not their duty to search for valuable articles or currency. The judge went on to say that the ordinance which states that the village owns all the waste when it is collected does not apply to currency, because money is not waste paper—yet.

Light under a bushel—Copper plates proclaiming Harry Messer, Cincinnati, as the general contractor for the new J. C. Penney Building in downtown Indianapolis, Ind., have been ordered removed from the sidewalk in front of the new structure. City Engineer William Hunt explained that the city legal department had ruled that putting up the sign was in violation of a city ordinance.

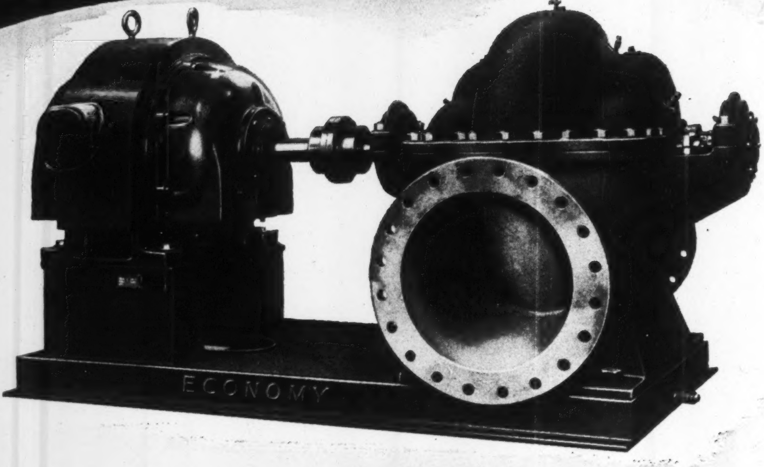
Photographic survey—Aimed to eliminate much of the tedious and time-consuming land survey work, a detailed aerial photographic survey of the full length of the pipeline which the Algonquin Gas Transmission Co. plans to construct to bring natural gas into New England, is now under way. The survey will be continued until the entire route between Lambertville, N. J., and Boston has been photographed.

Georgia cracks down—The Georgia highway department and the state's highway patrolmen are putting on an intensified campaign against overloaded trucks, regarded as a serious menace to the state road system. U. S. 17 was built for vehicles with weights of not over 45,000 lb, but patrolmen have discovered trucks on that highway hauling up to 90,000 lb. Spot checks are now taking place, crews shifting without notice from one route to another.

Fort Pitt

when it's pumps, think of Economy

backed by over thirty years of specialized experience



The Type M Single Stage Double Suction Pump illustrated is just one of the many in the extensive line manufactured by Economy Pumps, Inc. This exceptionally rugged design is available in capacities from 50 to 30,000 gallons per minute at heads to 300 feet. A general purpose pump, it is ideally suited to general water supply or heavy mill service.

Maintenance expense is held to a minimum. Case records show Economy Pumps operating for fifteen to twenty years without replacement of major parts. However, should repairs be necessary, all parts subject to wear are renewable.

Economy Pumps are tested in accordance with the standards of the Hydraulic Institute and the A. S. M. E. under conditions duplicating as nearly as possible those encountered in actual service.

Catalog No. A750 gives complete design and construction details, also some interesting typical examples of performance, as well as handy selection tables. Write Dept. CB-1 for your copy.

Economy Pumps Inc.

DIVISION OF HAMILTON-THOMAS CORP., HAMILTON, OHIO

THE CONSTRUCTION WEEK

DIRECTOR STEPS OUT—NPA found that it needed a new director of its Construction Controls Division, after all (ENR, Jan. 18, p. 23). James W. Follin, acting director, declined to serve after his NPA superiors overruled his advice that 45 days would be required to arrange smoothly-operating regional offices that could make prompt decisions on applications. When the organizing period was shortened to 30 days, Acting Director Follin stepped aside. A possible successor is William E. O'Brien, who was engineering coordinator and construction manager at AEC's Brookhaven Laboratories.

FIRST IN LINE—Defense plant expansion will get first claim on building materials, according to policy believed developing behind last week's NPA order prohibiting commercial construction starts until Feb. 15. Aim is to make more structural steel available in places where it will do most good.

HOUSING SHORTAGE HAMPERS WORKER RECRUITING—Out-of-area defense worker recruiting is snagged on a shortage of housing in some sections. Recent reports cited Milwaukee, Chicago, Rockford, Ill., and Hartford, Conn. In San Diego, Cal., the aircraft industry has been hiring 175 persons per day, but is losing 400 per week, 100 of these due to inadequate housing, it is said.

LABOR DEMANDS REALISM—Pressure for giving the Wage Stabilization Board real authority comes strongest from labor. The new United Labor Policy Committee, speaking for the AFL, CIO and non-operating railroad brotherhoods, told WSB it would not appear again before the agency until it has authority to make decisions.

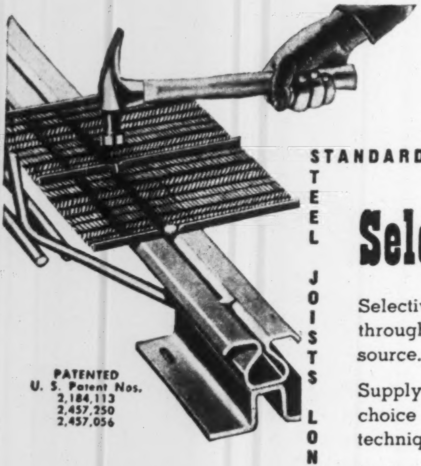
INDUSTRIAL DISPERSION—Until the Pentagon and the Office of Defense Mobilization determine the speed of the arms build-up, industry cannot know whether it has time to disperse its new, expanded plant. The question is hot. A basic answer will be forthcoming soon. Once the timetable of calculated risks is set, each plant can measure costs vs. hazards for alternate locations of expanded capacity.

NIAGARA IN AGAIN—Lehman-Roosevelt bills to authorize U. S. redevelopment of Niagara Falls have been re-introduced in the new 82nd Congress. More will be heard of them soon. In three years or less, the power scheme could add a million kw of firm energy—at a cost of $300 million.

REGIONAL STEEL BUDGETS—Under the licensing system for commercial construction—to start Feb. 15 (ENR Jan. 18, p. 23), NPA is thinking of assigning a steel budget to each of the 14 regional offices. In each region, the local board would measure applications against this budget. The less steel a job required, considering its size, the better chance it would have.

WHY LOFT BUILDINGS?—Theoretically, loft buildings are designed for light manufacturing. They were included in NPA'S restrictive order on commercial building because it would be too easy to erect loft buildings and then partition them for office use, thus evading the ban on office structures.

RADIOACTIVE WATER—A compound known as "lime and iron" may be the best medium for removing radioactivity from water on a large scale, according to laboratory experiments at Chicago's South District Filtration Plant. Experiments conducted over the last several months indicate that radioactive isotopes attach themselves rather readily to this precipitate which then can be removed by filtration in the plant's rapid-sand filters.



PATENTED
U. S. Patent Nos.
2,184,113
2,457,250
2,457,056

"Reprinted from The Journal of the American Institute of Architects"

STANDARDIZED SERVICE IN STEEL CONSTRUCTION

STEEL JOISTS LONGSPANS DECKING AND TRUSSES

NAILABLE STEEL FRAMING FOR MULTIPLE HOUSING

Selectivity The Architect's Privilege

Selectivity has a price on its head—a value established through preference that is priceless to the favored source.

Supply a name for your favorite place to eat, your choice of cars, clothes, building products or design techniques embracing several products.

Back of each is an organization that has won your confidence ONLY because that organization has realized that yours is the God-Given right to select.

None of them was satisfied to give you just a good product. No, it's above that level that selectivity lays claim to your preference.

When Macomber designed the first, the original Open Web Bar Joist it was a good product, good enough to be copied by all other joist manufacturers.

But today only one steel joist has risen above the rank and file to give you NAILABILITY, the plus value that overrides all other joist standards in time and concrete saving advantages.

MACOMBER *Incorporated,* **CANTON, OHIO**
A NAME RESPECTED IN ENGINEERED CONSTRUCTION

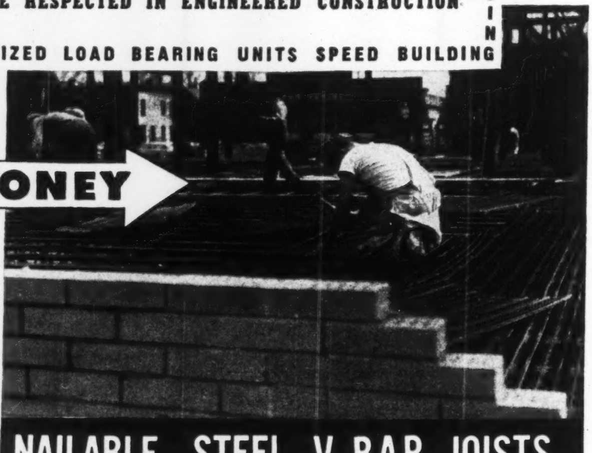
STANDARDIZED LOAD BEARING UNITS SPEED BUILDING

NAILING top lath is faster than wiring or clipping.

TO SAVE YOU MONEY

NAILING gives you a solid anchor, prevents deep pockets of wasted concrete between joists.

NAILING into V Joist Steel Top chords gives you a non-combustible anchor 2½ times stronger than wood.



NAILABLE STEEL V BAR JOISTS

U. S. ROADBUILDING HIGH—BUT NOT HIGH ENOUGH

The United States in 1950 put a record-breaking amount of money into building roads—and still fought a losing battle.

Engineering News-Record's figures show that 1950 contract awards for highways topped 1949 by more than 40%. Much of this work will carry over into 1951. But the actual amount of materials and manpower put into roads in 1950 will run well ahead of 1949.

Even so, 1950 will fall below the all-time highs of the 1930's in the physical volume of highway building.

TRAFFIC SHOOTS UPWARD—And, when compared to the soaring use of highways by cars and trucks, the 1950 construction program looks small. During the year, auto manufacturers turned out more than seven million cars and trucks. Some older cars were scrapped, but the number of vehicles using the roads still jumped by at least four million.

Travel gained even more. The official figures won't be in for months yet, but they'll probably show that U. S. drivers covered close to 460 billion miles during the year. That would be 8% above 1949—and more than 50% above 1940.

With this record, the country's needs for new highways are still increasing. The "backlog" of new highway construction needed—to overcome war deficiencies and handle the growing volume of traffic—has been estimated between $40 billion and $60 billion. The upsurge in highway use last year certainly increased needs for highway capacity more than new construction whittled them down.

In light of the country's mobilization needs, the nation's highways are definitely in worse shape than they were in 1940. By figures of the Department of Commerce, the 1930's witnessed the country's greatest period of highway construction. The road system in 1940 was in top condition.

Today highway congestion is at a peak—when the nation faces strains of mobilization. In addition, civil defense authorities are considering plans for evacuating major cities—over roads inadequate to cope with normal traffic.

All this intensifies the problems of state and municipal officials guiding highway construction. The sharp rise in ENR's contracts for highway work this year reflects officials' determination to press ahead on highway construction. Prospect for 1951 is that officials will push highway programs as fast as they can with the materials and manpower available to them.

NEW IDEAS IN FINANCING—When it comes to financing these highways, 1950 has seen some major steps ahead. The federal government, for its part, increased its contributions to highways slightly. And it made one very important advance of another kind: New legislation authorizes the use of federal funds to retire bonds issued to finance immediate construction of long-needed highways.

This climaxes ingenious financing arrangements worked out by cities and states. Detroit offers a first-class example of the trends in modern highway financing.

In Detroit, the city, county and state have pooled their funds to raise a total of approximately $6 million a year. This, when matched with federal funds, would allow the city to go ahead with about a $10 million-a-year program for building limited access roads.

But Detroit's pyramiding needs for highways showed this wasn't fast enough. So now the city is proposing to the state legislature that it be allowed to pledge the yearly $6 million of state-county-city funds toward a bond-financing program.

The plan, moreover, is to sell revenue bonds—to be repaid by revenues from gas taxes and licenses. These revenues, in Michigan, are shared by the cities, counties and state. The $6 million-a-year of state-county-city funds would be used as a security pledge.

In addition, the new federal act allows Detroit to use federal funds to help retire these bonds. In all, this financing plan will allow Detroit to raise about $100 million in bond money to add to its present pay-as-you-go construction funds.

In other areas, building surged ahead as authorities turned to tolls to finance new roads. The Pennsylvania and New Jersey turnpikes are outstanding examples of this kind of financing. Pennsylvania, in addition, has set up authorities to rent bridges and roads to its state highway department.

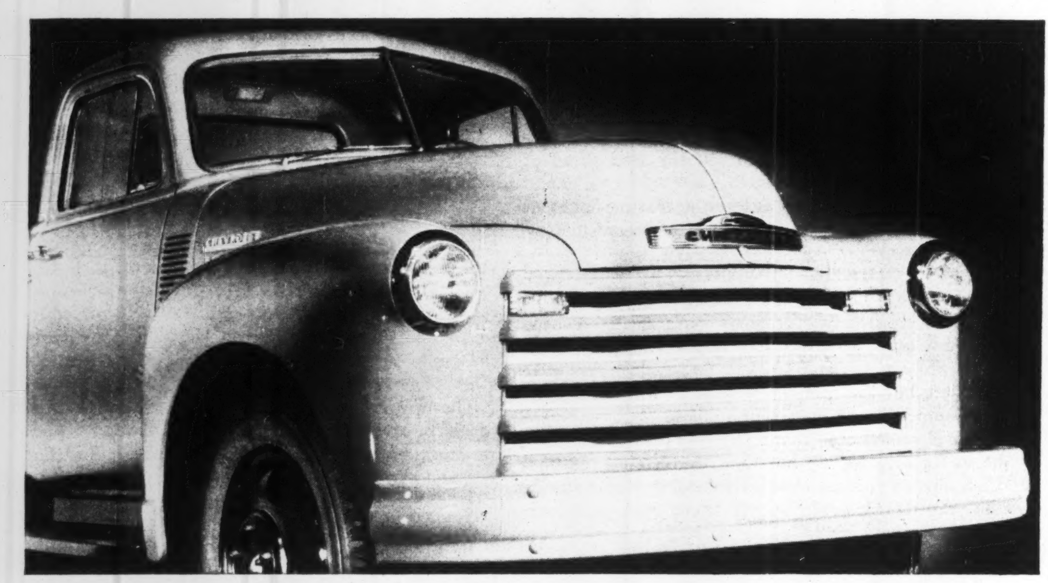
Finally, time-tested methods of financing are gaining new strength. The growing number of homeowners, and their growing ability to pay for new roads, helped raise street paving in 1950 to its highest point in twenty years.

Having reached its postwar peak in 1950, highway construction promises to roll on at a high level for years to come. With their new financing methods, states and municipalities are making a determined effort to catch up on highway programs.

All this promises to make 1951 another very big year for the roadbuilders. Even with the restrictions on materials that mobilization will bring, highway building will stay at a high level. Needs for highways are too great to allow new construction to dwindle away.

NEW 1951

CHEVROLET ADVANCE-DESIGN TRUCKS



New FEATURES! *New* QUALITY! *New* VALUE!

You'll find everything in these new 1951 Chevrolet trucks—everything that has made Chevrolet the world's most popular make *plus* new features and improvements that put them still farther ahead of the field. As a truck user, you'll welcome Chevrolet's new, better designed brakes for their increased effectiveness . . . their thrifty long life and extra safety! You'll recognize important contributions to trucking in Chevrolet's Dual-Shoe parking brake, the new Ventipanes, and Chevrolet's new cab seats . . . the very tops for riding comfort! See your Chevrolet dealer and take a good look at these 1951 Chevrolet trucks at your first opportunity. The "best in the business" are better than ever today! Chevrolet Motor Division, *General Motors Corp.*, Detroit 2, Mich.

CHEVROLET ADVANCE-DESIGN TRUCK FEATURES

TWO GREAT VALVE-IN-HEAD ENGINES—the 105-h.p. Loadmaster or the 92-h.p. Thriftmaster—to give you greater power per gallon, lower cost per load • **POWER-JET CARBURETOR**—for smooth, quick acceleration response • **DIAPHRAGM SPRING CLUTCH**—for easy-action engagement • **SYNCHRO-MESH TRANSMISSIONS**—for fast, smooth shifting • **HYPOID REAR AXLES**—for dependability and long life • **NEW TORQUE-ACTION BRAKES**—for light-duty models • **PROVED DEPENDABLE DOUBLE-ARTICULATED BRAKES**—for medium-duty models • **NEW TWIN-ACTION REAR BRAKES**—for heavy-duty models • **NEW DUAL-SHOE PARKING BRAKE**—for greater holding ability on heavy-duty models • **NEW CAB SEATS**—for complete riding comfort • **NEW VENTIPANES**—for improved cab ventilation • **WIDE-BASE WHEELS**—for increased tire mileage • **BALL-TYPE STEERING**—for easier handling • **UNIT-DESIGN BODIES**—for greater load protection • **ADVANCE-DESIGN STYLING**—for increased comfort and modern appearance.

CHEVROLET

EDITORIALS

The Administration Sets a Poor Example

CURTAILMENT of private construction to free men and materials for defense work would have been made much more acceptable to the general public had President Truman insisted on similar drastic cuts in federal nondefense spending. But there is little evidence of such cuts in the projects for which funds are asked in the President's budget message sent to Congress last week. Many large new projects are on the list of work proposed to be started immediately by the Bureau of Reclamation and the Army Engineers, some of which have not yet been approved by Congress. The fact that they will produce more power is given as the justification for including them at this time, but there cannot be so much urgency for so many power projects just at this time. No one of them can be completed to supply power for the plants that must be built at once to manufacture war materials and equipment; yet if they are started now, they will divert men and materials from those plants. Also, they will make more difficult the completion of projects that are under way and which can produce power much sooner.

Congress will do well to ask why a start on these new projects cannot be put off at least until we are past the peak of plant expansion that is so essential to the current defense program.

No Visitors Allowed

IT IS GRATIFYING to note that more and more public works officials and federal agencies are awakening to the serious and potential threats of sabotage. Both the Bureau of Reclamation and the Corps of Engineers have, in effect, hung out the sign, "No visitors allowed"—except, of course, for duly authorized persons—at their power plants, flood-control reservoirs, navigation locks and other vulnerable projects vital to our national defense. The public will be inconvenienced, do doubt. But access to such installations must be diligently safeguarded and rigidly controlled in the interest of national security. Only by such measures can we insure continued maximum contribution of these facilities, both in these times of national preparedness and in the event of war.

Many big cities also have imposed strict restrictions on visitors to their public service facilities, especially water treatment plants. But they should go further than that. The best defense against interruption of service—either from physical sabotage, sabotage by contamination or from avoidable breakdowns—is an efficiently operating plant. Obviously, the entire water treatment plant can't be fully protected against trained enemy agents, but plant operators should furnish extra safeguards for the most vulnerable control and operating facilities. Stand-by equipment should be provided where possible and alternative plans for emergency operation developed.

Anti-sabotage measures should begin with individual plants, but mutual aid among all plants in an area should be the rule during this emergency.

Construction Labor Hard Hit

THE FREEZE on commercial construction issued last week came as a surprise to few people who have been watching current trends in construction, except possibly as to its timing. But to many construction workers whose outlook was largely limited to the job in hand, or the one in prospect, it came as a bad jolt. They know by now that restrictions on most types of nondefense construction probably will be continued indefinitely. These curbs will impose severe hardships on some components of the construction industry, especially in the larger cities.

Since the end of World War II, the larger cities have experienced a boom in commercial construction. This the freeze order brings to a sudden end. However, even without the new restrictions, the boom showed signs of abating. Restrictions on copper and other materials were making it virtually impossible to complete projects under way. The freeze order should make finishing these jobs easier, but at the same time, it may put some contractors out of business and create considerable unemployment in the building trades in some parts of the country.

On the other hand, the order assures that construction of industrial buildings and housing can continue at a high rate. In some parts of the country, some of the big-city contractors and laborers may be able to shift to these fields. Housing work especially should be available; Congress is almost certain to pass a bill soon to stimulate house construction in defense areas, to insure a labor supply for defense plants. Furthermore, no new curbs on housing are planned at present.

Prospects for industrial building in coastal cities, however, are not too bright. Defense authorities would like to decentralize war production and move key plants away from the coasts. Construction personnel in these areas will probably find the going rough in a few months, though they may be able to keep busy for awhile building bomb shelters.

Since the present state of emergency is likely to continue for a long time, it might be wise for these people to give early consideration to seeking work building new defense plants wherever needed, even if that means leaving present centers of activity. They will then be able to stay in jobs in which they have acquired valuable experience. Also, they should find satisfaction in knowing that in so doing they are giving maximum assistance to the defense effort.

CLYDE

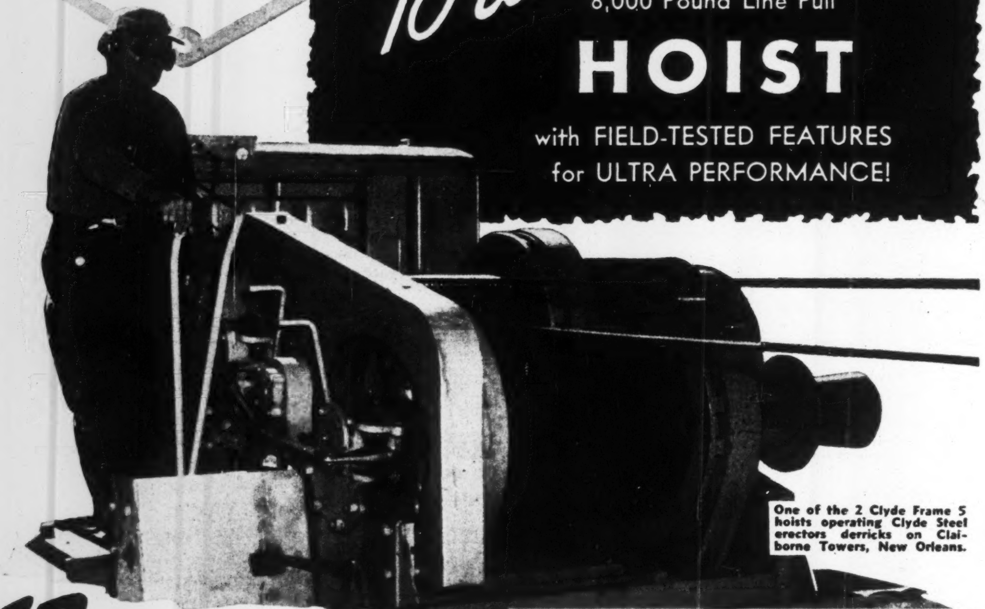
. . . An old respected name on a

Brand New!

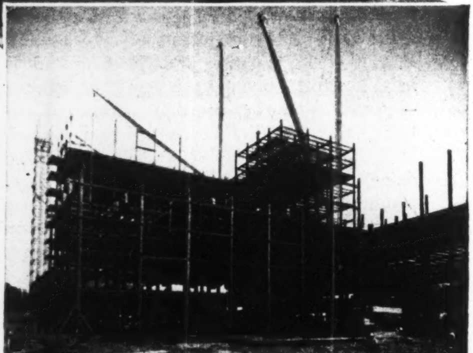
8,000 Pound Line Pull

HOIST

with FIELD-TESTED FEATURES
for ULTRA PERFORMANCE!



One of the 2 Clyde Frame 5 hoists operating Clyde Steel erectors derricks on Claiborne Towers, New Orleans.



17 *Quality Features . . .*

On This New. Frame-5 Hoist

Two-piece, internal expanding frictions • Friction bands easily replaced without removing drum • All levers conveniently banked to operator's comfortable seat • Large diameter brakes allow operator to "toe" the brake with full load control • Removable intermediate shaft • Ball bearing mounted shafts throughout for greater line pull with less maintenance and more economy • Chain adjustable without removing chain guard • Steel side frames and bed give more strength with less weight • Full view of drums from operator's seat • Lever bank accommodates additional levers for third drum or swinger • Proper size drums to give most practical rope service • Rolled steel, hook-type pawls, manually engaged, weight released • Totally enclosed automatic brake, standard on electric, optional on gasoline or diesel • 8,000 pound line pulls at various high speeds • Improved oil-tight chain guard with positive seal • Handles one yard concrete buck at high speed • Bull wheel swinger that allows unobstructed lead of lines from drum to bull wheel.

HOISTS - DERRICKS - WHIRLEYS - HANDI-CRANES - ROLLERS
BUILDERS TOWERS - CAR PULLERS -

Write for Free Folder
On a MODERN HOIST . .

CLYDE
FRAME
HOIST

CLYDE IRON WORKS, INC.

DULUTH 1, MINN

Subsidiary of Barium Steel Corp.

ENGINEERING NEWS-RECORD

JANUARY 25, 1951 VOL. 146 NO. 4

Military building replaces loss in private construction

Bigger airfields, new bases and camps for the Air Force are expected to receive major construction grants here and abroad under $8 billion military-naval program

Military building during the next 18 months will take up any construction slack resulting from prohibitive orders and credit controls already in effect. Defense requirements from now to mid-1953 may put $8 billion to $9 billion of military-naval public works under contract during that period.

In the current fiscal year ending June 30, military public works commitments (not expenditures) will run about $2 billion. The actual cash expenditure won't be that high. Many of the jobs will run over into the next fiscal year, starting July 1. Of the $2 billion, some $1.2 billion is to be invested in U. S. construction; the remaining $800 million will be spent overseas.

Soon after July 1, military-naval public works awards will really start to climb. In the 12 months of fiscal '52, the three armed services will sign contracts or orders for about $7 billion of construction projects. The Navy will handle a hefty chunk of the new business, but the really big construction buyer will be the Army Engineers. They build not only for the Army, but also for the Air Force, and the needs of the air arm will exceed those of both the other services.

Air Force construction is bound to be heavier than the others. We don't need any more navy yards or drydocks. Nor do we need many new Army camps in this country—a few, to be sure, but most of the training load for a 1.8-million-man army will be taken care of by restoring camps used in World War II. Navy Air will have to lengthen its runways and put in all the accessories, but only half a dozen naval airfields will have to be taken out of congested areas where runways cannot be extended.

• **Big air force seen**—By contract, a 95-group air force of 1951 design is going to need not only bigger airfields, but also new bases and camps, both in the U. S. and elsewhere. Air Force construction by the Army Engineers will run into big figures.

Where are construction contractors, suppliers and design engineers going to find the slack to pick up these impending loads. Restrictions now in force on commercial and amusement building, plus credit controls on residential construction, hardly give the leeway required. Cutbacks apparently will have to be extended to other branches of construction to make room for military public works.

• **Real savings small**—Actual savings under construction controls now in force are less than many people think. Home building is the only construction department that faces today a cut big enough to make a weighty contribution to defense. Even there, the steel saving won't be great. In structural steel, especially, the potential saving is small.

Volume cuts in other construction categories under M-4, as recently extended (ENR Jan. 18, p. 23), don't loom large in relation to total construction. Industry economists in October told the Commerce Department that overall construction volume in 1951 might run to $22.6 billion. The reduction possible under M-4 today amounts to no more than 4% of that total.

Amusement construction, banned by the original M-4 order would account for less than $500 million in a good year. Commercial building, which goes under licensing Feb. 15, would—without controls—take $1.25 billion of construction money in a year like this. Added together, the two make a total better than $1.5 billion.

• **What to show**—But not all new commercial building will be stopped. Jobs will be authorized to go ahead if builders can show the regional control boards that the projected structures are essential to: (1) the defense effort, (2) the health, safety or welfare of the people, or (3) the business economy of communities in which they are to be erected. Further, a construction license will be granted to any builder or backer who can show that he would suffer unreasonable hardship or loss if his project were stopped.

Under these liberal rules, it is almost certain that half the normal volume of new commercial starts will get under way. Once started, the jobs won't be subject to stoppage unless total war hits us.

Industry OK's freeze, with reservation

The construction industry last week took a look at the U. S. government's freeze order on commercial construction (ENR Jan. 18, p. 23) and decided that the order was necessary and probably wouldn't do too much damage.

That much was clear from a nationwide spot check conducted by ENGINEERING NEWS-RECORD to see how the industry reacted and what it thought might be the result. The survey indicated:

1. A majority of the men contacted (they included contractors, architects, engineers) thought the order was due, and might result in a better distribution of materials, a more orderly construction picture.

2. There would be unemployment for a time—between the period of the freeze and the start of defense work.

3. Washington needed to follow up its order—and quickly—with specific definitions of what it means.

• **No cause for alarm**—Ralph Walker, president of the American Institute of Architects, took the view that the long range effect would be beneficial, that there will be plenty of work. "Short-term effect will be worse," said Walker, "than long-term. The extreme shortage of several important materials . . . have created a series of bottlenecks which (would) cause a further scarcity . . . unless this determined action is taken. As the decentralization of industry and housing begins to take effect, the amount of construction will increase."

Although their organization issued no official statement, officers of the Associated General Contractors (many of

(*Continued on page 24*)

Industry OK's freeze—with reservations

(Continued from page 23)

whose members are also members of the Construction Industry Advisory Council that helped formulate the freeze order) concurred with the NIA leader. They saw only one possibly serious effect—the breaking up of some skilled crews that might not be reassembled when urgently needed later.

- **Around the country**—With some few exceptions—the reaction was the same: The action was due and necessary. San Francisco area and New York area contractors thought so. So did C. A. Bullen, president, N Construction Co. of Houston, Texas, who said: "It will license necessary projects and permit builders to get required materials to complete a job. It might prevent black and gray markets, prevent hoarding."

Also in Houston, R. J. Cummins, engineer, commented that he had found no one in the industry who objected to the freeze, if it helped the defense effort.

In Minneapolis, contractors were again uncertain—but they agreed with the principles of the order, hoped it would have the desired effect of regularizing construction. In any case, they thought they'd "get through" somehow. At Pittsburgh, there was little evidence of any great effect of the order—since most of the work there was long-planned and under way. But in other spots—notably New England and Memphis, Tenn., builders looked for many millions of dollars worth of work to be cancelled or held up.

- **Some are unhappy**—The Seattle and Pacific Northwest area, though was unhappy. The Seattle AGC and Construction Council thought the restriction was unwise—would rather see restrictions on key materials so that commercial construction could go ahead, using other materials if it could.

Others in the area foresaw unemployment as a result of the freeze order, on the ground that there wouldn't be enough defense construction to take up the slack.

- **Definitions**—On the point of definition, however, almost all were in agreement.

At Cleveland, the industry wanted to know: Is an addition a new building, or does the definition "new building" mean an entirely separate structure? Does remodelling come under the freeze? What, exactly, is the definition for commercial and industrial building?

San Francisco pointed out: Definition of "start" is very unfair. What's going to happen to the contractor whose gotten into the excavation stage?

Building trades plan stabilization pact

Representatives of the American Federation of Labor's Building Trades and Construction Department are expected to confer this week with U. S. government officials on voluntary plans for stabilizing wages and working conditions in the construction industry.

The program that the AFL's six-man committee will present to Eric Johnston, economic stabilization director and Cyrus Ching, chairman of the Wage Stabilization Board, looks toward the elimination of strikes that might affect the defense construction program.

A series of meetings at Miami Beach resulted in the appointment of a committee to carry forward negotiations with the federal government. Committee members are: James Marshall, representing the Associated General Contractors; H. R. Cole, specialty contractors; Paul Geary, subcontractors; Daniel Tracy, of the Electrical Workers; Richard Gray, president of the AFL Building and Construction Department, and Morris Hutcheson, of the carpenters union.

- **Details**—The AFL plan envisages a board that would closely resemble the Wage Adjustment Board that functioned in the later part of World War II.

This nine-member board would be divided equally between representatives of labor, the public and employers,—would stabilize wages and adjust disputes on wages and working conditions. It would not, however, enter the field of jurisdictional disputes —now handled by a separate labor-management board.

Decisions of the board would be subject to national stabilization policy, and its rulings would be subject to review by Mr. Johnston or Mr. Ching. Board decisions will then be final.

Observers at the Miami meeting said that the plan for stabilization grew out of conferences in Washington recently, under sponsorship of Secretary of Labor Maurice J. Tobin, in which it was decided that labor and industry spokesmen should confer on proposals to meet problems of stabilization. Conferences may be held on other questions also.

White House mementos

The Commission on Renovation of the Executive Mansion announced a plan for the disposition of surplus material from the White House in Washington. The distribution of mementos is to be self-supporting financially.

Although no charge will be made for material, the applicant is asked to pay a proportionate charge to cover costs of authentication, handling and administration. Prices are expected to range from 25 cents for a piece of hand-split lath or one dollar for a brick to $100 for enough brick or stone to face a fireplace. The purchaser pays transportation charges.

Persons desiring mementos should request an application form from: Commission on Renovation of the Executive Mansion, Fort Myer, Va. Do not send requests to the White House.

Deferment of scientists urged by NSRB committee

The Scientific Manpower Advisory Committee of the National Security Resources Board—established recently to advise on the efficient utilization of scientific and technological workers—has agreed unanimously upon recommendations for military deferment of scientists, engineers and others with special skills. These recommendations, not yet made public, have been submitted to Mobilization Chief Charles E. Wilson.

It is said that the recommendations, in their present form, will call for setting up a national scientific personnel board. Practically all scientific and engineering groups have already recommended such a board.

The NSRB report will call attention to the shortage of engineers and scientists and recommend that steps be taken for a continuous flow of trained personnel. It will include provisions for deferment of upper-classmen in colleges and universities, and also for deferment of a large percentage of abler students now in freshman classes. It will recommend that, after four months' basic training, there be selected an adequate number of young men for college training to take care of civilian and military requirements in these fields.

It is recommended that a sufficient number of promising high school students be deferred to insure fall classes at colleges and universities. It is recommended further that as soon as possible there be a long-range policy providing for deferment, after the four months' basic training, of a selected group.

Little change in maximum mortgage amounts under broadened Regulation X

Owner required to make minimum down payment out of his pocket; second mortgages, personal loans, other credits not permitted

The recent extension of credit regulations to multi-family dwellings does not make things too tough for apartment builders. The Federal Reserve Board and the Housing and Home Finance Administrator could not make the new restrictions too severe. The government wants to protect its objective of maintaining a proportionate share of rental housing construction during the defense emergency.

Actually, the new credit restrictions are little tougher than the Federal Housing Administration requirements already in force for government insurance of mortgages on rental projects. For apartments costing up to $15,000 each, the new terms are almost the same as the FHA requirements in effect during the preceding six months.

Credit requirements for apartment house construction are as follows:

If the value per family unit is $7,000 or under, the maximum mortgage amount permissable under the extension of Regulation X is $5,810 (83%). It has been $5,950 and 85%.

Family units varying from $7,000 to $15,000 have a maximum of $5,810, plus 53% of the excess over $7,000. It was formerly $5,950, plus 55% for that over $7,000. Example: A $10,000 unit value is allowed $7,400.

From $15,000 to $23,500 the top is $10,050, plus 20% of the excess over $15,000. For a $20,000 unit the mortgage amount would be 11,050.

Over $23,500, the mortgage permissible is a straight 50%.

Mortgages exceeding $8,100 per family unit can be financed only by conventional lending; no FHA mortgage insurance is permissible for these higher-cost units.

Maximum FHA mortgage may not exceed $8,100 per family unit, or $7,200 per family unit if the number of rooms in the project does not equal or exceed four and one-half per unit.

Putting the determination of maximum mortgage amount on a family unit basis for conventional financing, as well as for FHA-insured mortgages, is almost the only new feature introduced by the Jan. 12 broadening of Regulation X and its counterparts. Appraisals of property value are to be made as before, by private lenders or by FHA, depending upon whether the financing is to be conventional or government-insured.

- **Decision on the appraisal** formula delayed the multi-family credit regulation at least two months. Since Oct. 12, when Regulation X for one- and two-family dwellings came out, the FRB and the HHFA administrator have been struggling with this key problem. They finally settled on the easiest and most workable solution—relying on the good faith of lending institutions in making honest, conservative appraisals of apartment projects on which they are lending money.

The new regulations dropped only one fly in the builder's ointment. They require that the owner of the property to be constructed make the minimum down payment out of his own pocket. This rule requires a man building units in the $7,000 class, for example, to chip in 17ps. of the cost out of his own funds; no secondary financing by supplemental mortgages, personal loans or other credit devices is permitted.

FHA-insured co-ops come under the new regulations, but the co-ops still retain a small advantage. Maximum mortgages for these co-op housing ventures range in general from 83 to 88% of value, depending upon the proportion of members who are veterans. VA-aided co-ops likewise are covered by the new regulations.

Government housing officials want rental housing to maintain its position in relation to total housing. During the last year, more and more of the multi-family housing has been financed by FHA-insured mortgages. From 1947 through 1949, FHA mortgages supplied the funds for 70 to 75% of all multi-family construction. During 1950, this percentage rose even higher. For the future, FHA mortgages are expected to finance most of the multi-family projects under the new regulations.

Defense needs prod prefabs upward

Output of prefabricated housing took a sharp jump upward last year. Production in 1950 totaled 55,000 houses, an increase of 20,000 over 1949. In addition to the continued strong demand for private housing, there is now the added business of the armed services—who have a need for packaged buildings which have a service life of five years, or less in some cases.

The armed services will take a big chunk of prefab production in the next two years. Navy negotiators have been dickering at Port Hueneme, Calif.—the U. S. Naval Construction Battalion Center—with 10 prefabbers, trying to get the best price for 400 buildings, 20 x 48 ft. These timber-frame, flat-roof, insulated, hardboard structures were originally developed by the Green Lumber Co., Laurel, Miss. However, Green has no inside track on the negotiated contract. Nine competitors have just as good a chance, offering modified versions of the prototype, even though the Bureau of Yards and Docks has tested only the Green Lumber Co. design, both in California and in Maryland.

- **The Navy is after a non-steel prefab,** packaged building that will equal—or better—the Quonset hut, both in cost and in usefulness. It wants a 20 x 48-ft structure that will travel complete in a 300-cu ft bundle.

The present buildings, fabricated to Navy design and specifications, are intended primarily for domestic use as emergency mobilization structures. They are stout enough and compact enough, however, to be shipped overseas for advanced base use should conditions require.

The new defense housing bill, slated to go through Congress in a walk, proposes $15 million in additional lending power for the Housing and Home Finance Agency to help prefab producers and distributors. With $10 million still in the sock, the agency then will have $25 million for the purpose.

- **As a safeguard,** the bill stipulates that the loans can go only to firms of demonstrated ability. Neither Congress nor government housing people want to see any more loans to neophytes like Lustron. If the RFC had not tied up $37.5 million of the original lending authority in loans to Lustron, the fund would have had nearly $50 million left in it when it was transferred last year to HHFA.

◆

Halifax harbor bridge in planning stage

Engineers are drafting plans to bridge Halifax harbor connecting the city of Halifax and the town of Dartmouth, N. S. The work is under the direction of P. L. Pratley, Montreal consulting engineer.

Financing would be a joint undertaking of the Canadian government, the province of Nova Scotia, and the cities of Halifax and Dartmouth County would also be included.

Sanitary interests ask materials claim agency

Annual 2-day meet of New York Sewage & Industrial Wastes Association hears of progress in lining up materials for '51

A water, sewage and industrial wastes joint committee set up Dec. 6 met in Washington last week with Defense Production Administrator William H. Harrison. Object: A stronger claim on critical materials.

Word from the meeting was brought late in the week to the convention of the New York Sewage & Industrial Wastes Association.

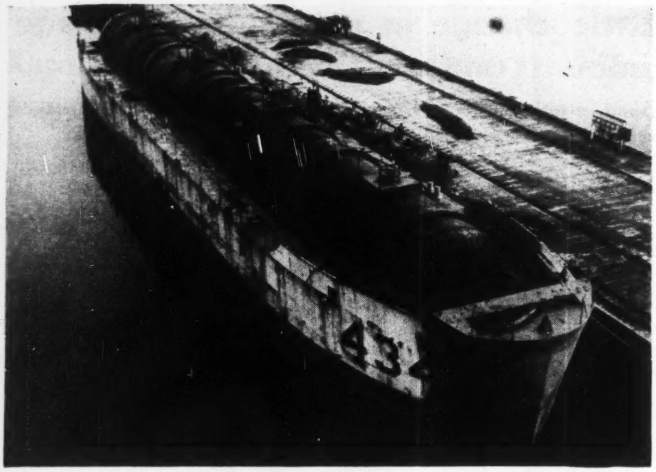
W. H. Wisley, executive secretary of the Federatoin of SIWA, reported at a luncheon session of the New York City conclave that only defense orders (DO's) get priority ratings, so far. However, in hopes that priorities will be extended farther to those it represents—the joint committee sought to impress Harrison with the importance of water and wastes construction and maintenance planned for 1951, giving him an accounting of $600 million worth of critical materials it would consume. Harrison heard them, promised consideration.

Main hope of the committee is to get a new claimant agent in Washington. Housing and Home Finance Agency has been assigned to handle materials claims of domestic water suppliers. That leaves constructors and operators of industrial water supplies, sewage works and industrial waste treatment plants with no clear channel through to the National Production Authority. The committee seeks an agency other than (stronger than) HHFA. In the meantime, instructs Wisely, individual problems in materials acquisition should be taken to regional offices for NPA attention.

Chlorine—On chlorine procurement Wisely disclosed that an order expected this week is to require producers to supply consumers with the now critical chemical at the rate which they used it during the first half of '50. Individual chlorine-supply problems should be addressed to NPA's chemical division.

Organizations represented on the joint committee are: American Public Health Association, American Water Works Association, Federation of Sewage & Industrial Wastes Associations and Water & Sewage Works Association. W. J. Orchard, general manager, Wallace & Tiernan Co., Inc., is head.

NY & IWA officers elected for '51 are: J. M. MacCrea, president; Walter Schreiner, vice-president; R. C. Sweeny, executive-secretary; J. C. Bringham, treasurer. The Kenneth Allen Award went to Seth G. Hess, Interstate Sanitation Commission.



NAUTICAL PICKLE BARRELS—Pickling liquor from Columbia Steel Co.'s tin plate mill on upper San Francisco Bay is dumped a minimum of 20 mi at sea from this rebuilt Navy LCM. Craft carries four rubber-lined steel tanks, 15 ft in dia and 40 ft long, with a total capacity of 197,000 gal. Two or three trips per week are made by Bay Cities Transport Co., barge owner and contractor.

Pollution group sought to police streams of N. C.

The North Carolina State Stream Sanitation and Conservation Committee has had a bill introduced in the State Legislature to create a permanent State Stream Pollution Commission. This body would have power to adopt and enforce rules and regulations concerning installation of "economically and technically feasible methods of protecting the waters of the state" and to "supervise and control the disposal of wastes in the waters of the state."

The Commission would be made up of seven members, two of whom would be the chief engineer of the State Board of Health and the chief engineer of the Water Resources Division of the State Department of Conservation and Development.

The Commission would be empowered to locate instances of pollution, and investigate them with the idea of applying remedies to correct the situation, establish general policies relating to water uses and "take appropriate steps to protect the waters from any violation of such standards and policies."

Automobiles parked off Boston's streets will be "frozen" in place come an air-raid alert. Philip Desmond, city traffic engineer, estimates the ruling should keep at least 11,000 vehicles from jamming traffic on the ten main routes to the suburbs.

ORVWSC to promote study of trace waste toxicity

The Ohio River Valley Water Sanitation Commission acted to study public health hazards of trace constituents in stream-borne wastes at its recent quarterly meeting. To conduct portions of this research into dangers of minute amounts of certain wastes in water, ORVWSC engaged the Kettering Laboratory of Applied Physiology, Cincinnati.

During the meeting, commission members participated in groundbreaking ceremonies for Cincinnati's $4,500,000 Little Miami sewage treatment works—first major municipal plant to be started on the Ohio since establishment of the eight-state commission.

Dynamiting needle ice unclogs intake pipes

Water supplies to homes, schools and industries of Ashtabula, Ohio, were reduced to a dribble or completely cut off on Jan. 10 when needle or frazil ice clogged intake pipes 3,000 ft. offshore in Lake Erie.

At first minor ice formations were dispersed by the flow-back system installed by the water works recently, but that afforded only temporary relief. However, after a 34-hour water shortage, the cause of it was removed when National Guardsmen on a tug dynamited ice that clogged the intake of the Ashtabula Water Works Co.

CONSTRUCTION BUSINESS

Federal construction plan revealed

Along with expansion of construction to support the immediate defense effort, the '51-'52 budget (ENR Jan. 18, p. 25) attempts also to allot sufficient cash for long-range developments to maintain steady growth of national strength. A third purpose is to supply just enough money to less essential, continuing projects to keep them operating and thus save the government the considerable expense of shut-downs and later resumptions.

Thus, the broad policy for civil public works in fiscal 1952 allows only a minimum rate of progress consistent with efficient use of funds. New projects are proposed in the budget only for defense or essential civilian needs. Among these are seven new power projects—six hydro and one steam— in areas where shortages exist or impend.

On the same basis of essentiality, highways are the only civil works item in the grant-and-loan category for which federal commitments will not be cut in 1951-52.

- **Highway construction** is to move ahead at an undiminished rate, with full recognition of the fact that the main roads must be improved to carry defense traffic. For that purpose, the Bureau of Public Roads is instructed to put as much as possible of the $470-million expenditure for 1952 into the 40,000-mile interstate system and its connecting urban highways inside the cities.

Direct federal construction of main highway links across national forest lands also will receive a larger allowance of $20 million. Forest roads and trails are due to spend more—$16.6 million—as an aid to increasing the timber cut.

Access roads to military posts and defense plants will be financed, so far as possible, by diversion of funds from less urgent roads. Construction is being started in the current fiscal year on a number of these roads. The President says the need will increase as time goes on.

Rivers and harbors funds

For fiscal '52, in his annual budget message, the President asks Congress for $149,405,000 for construction of rivers and harbors projects and $1,000,000 for planning. About 62% of this construction fund is for 5 power projects. The Corps of Engineers handles engineering and contracting.

The larger of the projects named in the budget include these listed for $5,000,000 or more:

FLORIDA, Jim Woodruff Dam, Part of Apalachicola, Chattahoochee & Flint Rivers System, Ga. & Fla. (Pwr)	$7,000,000
ILLINOIS, Chain of Rocks Canal	5,200,000
OREGON, McNary Lock & Dam, Ore. & Wash. (Pwr)	42,900,000
The Dalles Dam (Pwr)	18,000,000
TENN., Old Hickory Lock & Dam, Cumberland River (Pwr)	8,000,000
WASH., Chief Joseph Dam, Columbia River (Pwr)	17,392,000

The planning money would go to:

ALABAMA	
Howell Mill Shoals Dam, Alabama-Coosa Rivers, Ala. & Ga.	$300,000
Tenn.-Tombigbee Wtrwy., Ala., Miss.	100,000
ARKANSAS, Arkansas River & Trib., Ark. & Okla.	100,000
KENTUCKY	
Lower Cumberland Lock & Dam, Cumberland River	150,000
Fernbank Lock & Dam	50,000
Greenup Lock & Dam	50,000
OHIO, New Cumberland Lock & Dam, Ohio River	75,000
TENN., Carthage Dam, Cumberland River	100,000
TEXAS, McGee Bend Dam, Sabine-Neches Waterway	75,000

Flood control, '52 budget

The President's 1951-52 budget message requests $328,365,000 for flood control works, to be spent by the Army Corps of Engineers like this:

Total Construction	$315,250,000
Total Planning	2,000,000
Main & Oper of completed wks	5,300,000
Prelim exam, surveys & conting	4,500,000
Transfer to Fish & Wildlife Service	75,000
Transfer to U. S. Geological Survey	400,000
Salaries, Office, Chief of Engineers	840,000
Grand Total	**$328,365,000**

Expenditure budgeted for construction include these projects listed for $5,000,000 or more: (About half of the construction fund goes to 8 power projects.)

ARKANSAS	
Blakely Mountain Reservoir	$6,000,000
Bull Shoals Res, Ark. & Mo. (Pwr)	14,960,000
CALIFORNIA	
Folsom Reservoir	6,985,000
Los Angeles City Drainage Area (Excl of Whittier Narrows Resv)	6,085,000
Pine Flat Reservoir	8,695,000
Whittier Narrows Reservoir	5,000,000
FLORIDA, Central & Southern Fla.	6,500,000
GEORGIA, Clark Hill Reservoir, Ga. & S. C. (Pwr)	18,300,000
IDAHO, Albeni Falls Res. (Pwr)	10,000,000
NEBRASKA, Gavins Point Reservoir, Nebr. & S. Dak.	5,000,000
NEW YORK, Mount Morris Reservoir	5,131,400
NO. CAROLINA, Buggs Island Reservoir, Va. & N. C. (Pwr)	17,000,000
NO. DAKOTA, Garrison Resv. (Pwr)	37,083,700
OREGON	
Detroit Reservoir (Pwr)	16,978,000
Lookout Point Reservoir (Incl. Power & Dexter Re-regulating Dam (Pwr)	16,633,000
PENN., Conemaugh River Resv.	10,000,000
SO. DAK., Fort Randall Resv. (Pwr)	34,699,000

The budget for planning includes these projects:

ARKANSAS, Table Rock Reservoir, Mo. & Ark.	$100,000
D.C., Anacostia River, D.C. & Md.	25,000
GEORGIA, Hartwell Reservoir, Ga. & S. C.	200,000
INDIANA, Vincennes	20,000
KENTUCKY, Jessamine Creek Resv.	50,000
MONTANA, Libby Reservoir	200,000
NEW MEXICO	
Chamita Reservoir	60,000
Rio Grande Floodway	25,000
NEW YORK	
Corning	25,000
Wellsville	34,500
OKLAHOMA	
Eufaula Reservoir	30,000
Keystone Reservoir	100,000
Markham Ferry Reservoir	50,000
OREGON, Hills Creek Reservoir	200,000
PENNSYLVANIA	
Allentown	35,000
Bradford	40,000
Shenango River Reservoir	70,000
TENNESSEE, Stewarts Ferry Resv.	50,000
TEXAS, Dallas Floodway	50,000
VERMONT, Ball Mountain Resv.	55,000
Victory Reservoir	30,000
VIRGINIA	
Gathright & Falling Springs Resv.	175,000
Moores Ferry Reservoir	150,000
Salem Church Reservoir	150,000
W. VA., Wheeling-Benwood	75,500

Reclamation budget

Construction and rehabilitation get $223,690,000 of the funds requested for the Bureau of Reclamation in the President's fiscal '52 budget, general investigations $5,500,000, operation and maintenance $16,385,000, general administrative expenses $16,000,000 and emergency fund, irrigation and power systems $500,000.

Approximately 73% of this construction fund is planned for five projects which include power.

Of more than 50 projects car-marked for fiscal '52 funds, these get $5,000,000 or more:

Projects	**1952**
Gila, Ariz.	$6,870,000
Davis Dam, Ariz.-Nev.	8,072,000
Cachuma, Calif.	11,150,000
Central Valley, Calif. (Pwr)	38,350,000
Colorado-Big Thompson, Colo. (Pwr)	19,300,000
Hungry, Horse, Mont. (Pwr)	22,972,000
Columbia Basin, Wash. (Pwr)	27,900,000
Eklutna, Alaska	5,761,400
Missouri River Basin (Pwr)	58,673,600
Including in Phase A:	
Frenchman-Cambridge div.	8,400,018
Helena-Great Falls div.: Canyon Ferry unit	8,078,000
Transmission div.	18,709,640
Subtotal, phase A	46,015,600
Phase B, C, D	7,158,000
Other Dept. of Interior agenc's.	5,500,000

◆

Industrial buildings break all records for week

An unprecedented $141.4 million in industrial building contracts privately financed for the week ending Jan. 15 is partially responsible for the high volume of heavy construction awards, $391.6 million, reported for the week.

Industrial building contracts are running 419% higher for the first three weeks with a total of $254.5 million. Building of the type stopped until licensing starts Feb. 15 is $67.8 million, up 10% over last year.

BIDS AND BIDDERS

(Major project news received after Construction Reports, page 60, went to press.)

Bridge–Engineers reported this week that it would be "wise and economically sound" to construct a five mile bridge over the Straits of Mackinac, Michigan. The bridge, which would be second only to the Golden Gate Bridge, would cost $76,000,000 and would have 4 traffic lanes and a main span of 3,800 ft. Dr. David B. Steinman, and H. O. Ammann, New York, and Glenn B. Woodruff of San Francisco made the report.

Generating Station–Sanderson & Porter, New York, N. Y. has been awarded contract for the construction of power plant on Cheat River at Albright, W. Va., which they designed for the Monongahela Power Co., Hagerstown, Md. Estimated cost is $20,000,000.

Mill–McGraw Constr. Co., Middletown, O., was awarded the contract for a $15,000,000 slabbing steel mill and processing equipment in Ashland, Ky., for Armco Steel Corp. of Middletown, Ohio.

Mill–Edmonton Pulp & Paper Mills Ltd. asks bids for a mill and grinder room on the North Saskatchewan River, 6 miles east of Edmonton, Alta. T. A. Burton & Co., St. Catherines, engineers. Estimated cost is $14,000,000.

Hospital–Henry Ford Hospital, Detroit, Mich., asks bids for a $13,600,000 hospital addition. Voorhees, Walker, Foley & Smith, New York, N. Y., are architects.

Strip Mill–A $10,000,000 contract has been awarded to Morgan Construction Co., Worcester, Mass., for strip mill for rolling steel for stainless steel tubing at Sault Ste. Marie, Ont., by the Algoma Steel Corp., Ltd., Sault Ste. Marie. Canadian General Electric Co., Ltd., Toronto, Ont., will construct main electrical drive at $1,600,000.

Ashburton filtration plant–Bureau of Water Supply, City of Baltimore, Md., has studies in progress for the $8,000,000 Ashburton Filtration Plant. Whitman Requardt & Associates, Baltimore, are consulting engineers and Leon Small is city engineer.

Dam–Greater Vancouver Water Board, B. C., asks bids for construction of a $6,600,000 concrete gravity type dam for supply of drinking water in North Vancouver. John Savage, Denver, Colo., is engineer.

Housing–Sullivan & Cozart, Inc., Louisville, Ky., submitted low bid at $6,084,000 for south housing project of the Municipal Housing Comm., Louisville.

Paper plant–Contract for Halifax Paper Co. Paper plant addition in Roanoke Rapids, N. C., was awarded to Rust Engineering Co., Pittsburgh, Pa., at approximately $5,800,000.

Homes–Paul V. Morris, Dayton, Ohio, will build 175 ranch-type homes on 66-acre tract on David Rd., Dayton, to cost about $5,000,000.

Factory–Citizens of Greenville, Miss. overwhelmly approved a $4,000,000 bond issue to construct factory for the Alexander Smith & Sons Carpet Co., Yonkers, N. Y. in Greenville.

Regional Office and Clinic–Gust K. Newburg Construction Co., Chicago, Ill., was low bidder at $4,657,000 for regional office and clinic building in Chicago, Ill., when the Veterans Administration, Washington, D. C., opened bids January 16.

Office building–Anglin-Norcross, Ltd., Montreal, Que., has been awarded superstructure of Bureau of Statistics Building in Ottawa, Ont., at $5,889,000 by the Dept. P. Wks., Ottawa, Ont.

Power Plant–United Engineers & Constructors, Inc., Phila., Pa. will design and construct a $4,750,000 power plant and utilities for the Monsanto Chemical Co., Plant at Texas City.

Barracks–U. S. Engineers, Louisville, plan eight 3-story, basement, reinforced concrete barracks at Fort Campbell, Ky., to cost about $3,000,000.

Alaska Way Viaduct–Morrison-Knudsen Co., Inc., and Rumsey & Co., Seattle, Wash., were low at $3,691,400 for constructing 2nd section of double deck Alaska Way Viaduct in Seattle, Wash., when Wash. State Hy. Dpt., Olympia, opened bids Jan. 16.

Generator Plant–Stone & Webster Engineering Corp., New York, N. Y., will design and construct addition to generator plant at East Pittsburgh Works, of the Westinghouse Electric Corp., Pittsburgh, Pa. This is first section of large expansion program, including two buildings one of which will be one of the tallest one-story structures in existence.

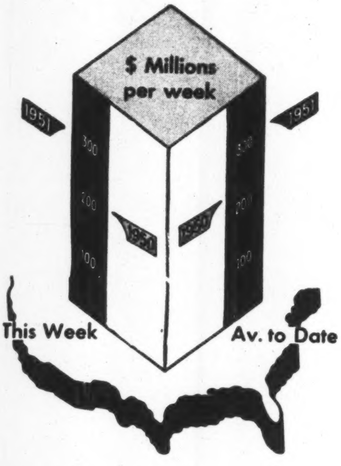
COSTS AND VOLUME

ENR INDEX NUMBERS

Index Base = 100	1913	1926	1949
Constr. Cost.	530.73	255.12	111.26
Bldg. Cost	392.06	211.93	111.45
Volume .....Dec.'50	759	308	219

Activity This Week

As reported to ENR
(in millions of dollars)



Amount of contracts let

	Week of Jan. 25, '51	Cumulative 4 wks 1951	Cumulative 4 wks 1950	% chge
Federal	$21.5	$283.6	$275.6	+ 3
State & Mun.	48.4	300.7	211.8	+42
Total Public	$69.9	$584.3	$487.4	+20
Total Private	235.4	682.6	428.1	+59
U. S. Total	**$305.3**	**$1,266.9**	**$915.5**	**+38**

Contracts by type of work

	This Week	Cumulative 4 wks 1951	Cumulative 4 wks 1950	% chge
Waterworks ..	$3.1	$12.5	$24.4	–49
Sewerage	6.5	29.2	16.9	+73
Bridges	4.4	27.7	25.9	+ 7
Highways	10.1	59.2	63.1	– 6
Earthwork, Waterways	4.8	14.7	26.0	–43
Buildings:				
Public	26.5	329.8	272.6	+21
Housg., pub.	13.0	83.4	21.8	+283
Housg., priv.	84.5	170.8	215.2	–21
Commercial .	13.2	81.0	104.3	–22
Industrial ..	124.2	378.7	74.9	+406
Unclassified ..	15.0	79.9	70.2	+14

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

New capital for construction

	Cumulative 4 wks 1951	Cumulative 4 wks 1950	% chge
Corporate Securities	174.4	74.7	+133
R.F.C. & C.P.A. loans	73.4	NA	NA
State and Municipal:			
Excl. housing ..	80.6	126.9	–36
Housing	57.0	95.6	–40
TOTAL NON-FEDERAL..	$385.4	$297.2	+30
FEDERAL	2,602.5	NA	NA
Total Capital	**$2,987.9**	**NA**	**NA**

Thirty years of highway research reviewed at Washington meeting

Highway Research Board celebrates anniversary of its establishment as a major activity of the Division of Engineering of the National Research Council—pavement studies reported

Completion of 30 years of research into problems of road design and construction was made the subject of a special evening session at the annual meeting of the Highway Research Board in Washington, Jan. 9-12.

Speakers at the anniversary celebration were Thomas H. MacDonald, head of the Bureau of Public Roads, who was one of those who took an active part in the establishment of the board, Detlev W. Bronk, president of the National Academy of Sciences, under which the Highway Research Board operates, Roy W. Crum, director of the board, and Hal H. Hale, executive secretary of the American Association of State Highway Officials.

A proposal that highway research activities be coordinated under the Division of Engineering of the National Research Council was made in 1919 by A. N. Talbot and Anson Marston, who were then serving as ASCE representatives in the division.

On Oct. 8, 1919, they met with Thomas H. MacDonald, A. T. Goldbeck and others from the Bureau of Public Roads, and with Clifford Older, president of the Mississippi Valley Association of State Highway Departments, to see what could be done to implement their proposal. As a result of that meeting, the Advisory Board on Highway Research was set up on Nov. 11, 1920. That board's name was changed to the Highway Research Board in 1924.

W. K. Hatt, on leave from Purdue University, was appointed director of the board in 1921. Upon his return to teaching in 1923, Charles M. Upham was named to succeed him. Roy W. Crum succeeded Mr. Upham in 1928.

High tribute to Roy Crum was paid by Mr. Hale, Mr. MacDonald and Mr. Bronk for his direction of the board's activities since his appointment as director. Mr. MacDonald laid special emphasis on the cooperative work now being carried out under the board's auspices with the Bureau of Public Roads, state highway departments, several universities and some industries. He cited the Maryland test road as the most recent example. Mr. Bronk made a stimulating appeal for continuation of basic research during the current emergency and for speed in seeking practical applications for that research.

(For a report of earlier sessions of the HRB meeting see ENR Jan. 18, p. 28. Reports on other sessions follow.)

• **Concrete pavement studies**—Progress reports on test sections of concrete pavement in Kentucky, Minnesota and Michigan, laid ten years ago as part of a long-time test program inaugurated by the Bureau of Public Roads, were given by E. L. Gregg of the Kentucky Highway Department, O. L. Kipp of Minnesota and E. A. Finney of Michigan at a panel discussion of experimental pavements. The pavements were laid and without reinforcing and with and without load-transfer devices at the joints. (For a summary of the Michigan 10-year report ENR Nov. 16, p. 38).

As to movements at expansion and contraction joints in these pavements, all three speakers agreed that the space in expansion joints has reduced in width progressively, and that contraction joints have opened and remained open. Where load-transfer devices were not used there has been faulting at both contraction and expansion joints.

All three men agreed that expansion joints are not necessary except at bridges or crossings. Mr. Kipp said that Minnesota now builds most concrete pavements without expansion joints and has had no blow-ups. Mr. Finney said that field experience in Michigan indicates that blow-ups do not occur in pavement without adequate expansion space until a pavement has been down at least 15 years. Such blow-ups, he added, are probably the result of poor construction, not lack of expansion joints.

Mr. Gregg said that during the past two years Kentucky has laid two stretches of concrete pavement in which expansion joints were put only at the end of each day's work.

• **Continuously reinforced pavements**—Three states reported experience with continuously reinforced concrete pavements, California, Illinois and New Jersey. T. E. Stanton, materials and research engineer of California, said that California's test pavement was not laid until the summer of 1949, hence his report should be considered as preliminary only. The test pavement consists of one mile of 8-in. concrete laid in two 12-ft lanes of a four-lane divided highway near Fairfield. One half mile is reinforced with ½-in. bars low-strength steel (EL 54,090), spaced 4 in. apart and the other half has high-strength bars (EL 71,935) on 5-in. centers. Bars are continuous through all construction joints. They amount to 0.62% and 0.50% of the cross-section, respectively.

A total of 184 strain gages and 72 temperature compensation gages were

(Continued on page 30)

DOWN HEARTBREAK HIGHWAY—United Nations soldiers sadly watch flames consume a pontoon bridge across the ice-choked Han River after the crossing had been dynamited following abandonment of the South Korean capital of Seoul. Despite the temporary handicap, the Reds poured across the stream in close pursuit a little later. (Wide World photo)

Cracked reinforced pavements studied

(*Continued from page 29*)

attached to the steel. Only about 5% of the strain gages were active at the end of 18 months. Stress across cracks reached an average of about 50,000 lb in the low-strength steel at seven months and 81,000 lb for the high-strength steel. In both instances the maximum was reached in somewhat less than 12 months.

The crack pattern is of special interest. At the end of the first year the average number per 100 ft of pavement was 22, except for the first 140 ft at each end, and the average slab length was 4.5 ft. There were fewer cracks to the left of each construction joint (in the older concrete) and more in the first section laid each day, the slab length being reduced to less than three feet in those initial sections. As the reinforcing is continuous through construction joints, it appears probable that this increase in cracking is due to the fact that the newer concrete has less strength to resist the shrinkage pull across the joint area.

The Illinois pavement was laid in 1947-48. It has a total length of 5¼ miles and is divided into eight sections ranging in length from 3,500 to 4,200 ft, each separated from the other by expansion joints that were 4 in. wide originally. Four sections are 7 in. thick and four are of 8-in. concrete. Steel percentages range from 0.3 to 0.5, 0.7 and 1.0%.

As in the California pavement, gages installed originally on the steel were effective for only about the first year, according to H. W. Russell, engineer of materials for Illinois. The maximum observed stress across a weakened joint was 63,400 lb, which was well below the yield point of the rail-steel used for the longitudinal bars. Stress away from the joints was never over 10,000 lb, indicating that the concrete was carrying a large part of the stress.

Crack intervals have been found to bear a close relation to the amount of reinforcing steel, and crack openings are least in the sections with 1% steel and widest on the 0.3% sections. Crack frequency follows a peculiar pattern being maximum in a zone 300 to 500 ft from the ends and less frequent throughout the central area.

Most cracks are too small to be apparent to motorists, and pumping has developed at only two points although the pavement is laid on a soil susceptible of pumping. The pavement has good riding qualities with none of the rhythmic bump experienced on pavements with closely spaced joints.

Mr. Russell said that although it is too early to draw definite conclusions as to the ultimate performance, it would appear that a continuously reinforced concrete pavement will give excellent performance. It may be necessary to provide more steel than earlier studies indicated.

Less optimistic conclusions were drawn by William Van Breemen of the New Jersey Highway Department as a result of his observations of a similar test pavement laid in that state. There both the density of traffic operating over the test sections and the axle loadings were much higher than in Illinois or California.

The two New Jersey test sections were laid in the fall of 1947. One is 5,430 ft long, of 8-in. concrete containing 0.9% steel and the other is 5,130 ft of 10-in. concrete with 0.72% steel. Both consist of two 12-ft lanes constructed independently as the northbound lanes of a divided highway. Reinforcing consists of double lines of welded wire fabric in which the longitudinal members are ¾-in. cold drawn wire spaced 3 in. c to c. The 8-in. sections were laid over 12 to 14 in. of high quality subbase material and the 10-in. sections are over 12 in. of the same material. The native soil is highly susceptible to pumping.

The tractor-semitrailer truck combinations that predominate on this highway (N. J. 25) may legally have a gross weight of 60,000 lb and single axle loads exceeding 30,000 lb, depending on tire size. The average number of truck-trailer combinations during 1950 was 1,742 per day, most of which traveled in the outside lanes.

Cracking, except in the end portions, is very extensive and erratic, and is somewhat more frequent in the 8-in. pavement and more numerous in the outer lanes. Spacing ranges from as little as 6 in. to 20 ft, although there are few locations where it exceeds 12 ft. There has been some spalling at cracks, and where cracks are close together there is a tendency to form small islands of concrete, which in turn tend to shatter and become dislodged.

Rather serious cracking has occurred to the north of construction joints—construction having been from south to north. This condition, Mr. Van Breemen said, raises questions as to the advisability of tying together two sections of different ages, especially where there may be delays of several days between paving.

Concerning the condition of the pavement generally, Mr. Van Breemen said that while its riding condition is good and it appears to be in excellent condition on superficial examination, closer inspection does not create a favorable impression. The cracks appear to be much wider than they should be for long-time service and there is ravelling at cracks in the outside lanes. If ravelling continues it soon will be serious. The 8-in. pavement, with its larger percentage of steel, appears to be in better condition than the 10-in. concrete.

- **Salary trends in highway work**—Up-to-date information on salary and wage trends in state highway departments was given in a progress report, "State Highway Personnel Practices," by Harmer E. Davis, director of the Institute of Transportation and Traffic Engineering at the University of California and chairman of the HRB Committee on Highway Organization and Administration. This report states that although the highway salary log-jam of recent years seems to have broken, highway employees still are not on a par with other state employees nor has the level of their salaries caught up with the level in industry or the federal service. The committee recommends that states adopt a flexible wage-adjustment plan that will permit changes between legislative sessions to compensate for changes in the cost of living.

Abstracts of many of the papers presented at this meeting were published in the December issue of "Highway Research Abstracts," copies of which can be obtained from the board's office, 2101 Constitution Ave., Washington 25, D. C., for 30c.

MAMMOTH ERECTOR SET—This swing-span bridge section, being fitted in the Roanoke shops of the Virginia Bridge Co., is 500 ft long and pivoted in the middle—to help support the roadbed for the $9 million George P. Coleman Memorial Bridge under construction at Yorktown, Va. (ENR Dec. 21, 1950, p. 32). It will be dismantled for shipment to the bridge site.

BRIDGE BARGES IN—This 420-ft steel span was floated into place on parallel barges as part of a construction job on the Little Calumet River, at the far south side of Chicago. Guided by cables, the barges were maneuvered into position—then flooded to ease the heavy span into place. (Acme photo)

Reclamation Bureau budget high spots

Among contemplated allocations for construction and rehabilitation by the Department of the Interior, Bureau of Reclamation, are nine major projects. The work planned on these was given, together with a long, detailed listing of smaller jobs, coincidental with the release of the Federal budget last week. (See also page 27.)

Work planned for fiscal 1952 on the largest nine operations follows:

- **Gila project**—Construction on the Welton-Mohawk pumping plants and canal will be completed.
- **Davis Dam**—Construction of the power plant, installation of first and second transformers at the Prescott substation, construction of the Knob switchyard of the second Parker-Gila transmission line, the Phoenix-Tucson and Coolidge ED-5 crosstie, and the Cochise substation of the Tucson-Cochise transmission line all will be completed.
- **Cochuma project**—Construction of the Goleta section of the South Coast conduit and the Glen Anne and Lauro regulating reservoirs will be completed. Work will continue on the Cochuma dam and reservoir; Tecolote tunnel and access road, and the Carpinteria section of the South Coast conduit. Construction will start on the Ortega and Carpinteria regulating reservoirs and the Goleta district laterals.
- **Central Valley project**—Practically all of the initial features of the project will be advanced during the fiscal year. The Friant-Kern and the Delta-Mendota canals will be ready for service along their entire length. Construction will continue on the Contra Costa and Friant-Kern distribution systems and started on that of the Delta-Mendota. That canal will be completed essentially and work will be in progress on the recently authorized Sacramento Valley canals. Work will start on the Folsom powerplant structure. Designs and initiation of construction of the Central Valley-Bonneville Power Administration inter-connection 230 kilovolt transmission line are programmed.
- **Colorado-Big Thompson project**—Construction will be completed on many features such as protective equipment for the Green Mountain powerplant, clearing in Granby reservoir, pumping plant and canal, Carter Lake pressure tunnel, and various substations.
- **Hungry Horse**—Construction of the dam and appurtenant works will continue, also on the outlet works and spillway tunnel lining, the power plant structure, the switchyard, and relocation of Forest Service facilities in the area. Installation of generators will start.
- **Columbia Basin**—The last two main generating units will be put into operation, and major power house and switchyard equipment installations virtually will be completed, bringing the total capacity to 1,974,000 kw, the largest in the world. Spillway repair, river channel improvement and much town and service facility construction at Grand Coulee Dam will be completed. About 67,000 acres of land the major portion of which has been reserved from the primary project works will become available for irrigation in 1952.
- **Missouri River Basin**—Work will continue on the Bostwick division, Nebraska-Kansas; Boysen unit, Wyoming; Angostura unit, South Dakota; Keyhole unit, Frenchman-Cambridge division, Kansas-Nebraska; Spadehill division, South Dakota; Dickinson unit, North Dakota; Heart Butte unit, North Dakota; Canyon Ferry unit, Montana; Fort Clark unit, North Dakota; Glendo unit, Wyoming; Cedar Bluff unit, Kansas; Narrows unit, Colorado; Crow Creek unit, Montana; St. Francis unit, Colorado-Kansas; Cartwright unit, North Dakota; Sadie Flat unit, Montana; Sidney unit, Montana; and Transmission division.
- **Bonneville Power Administration**—The total appropriation estimate of $75,000,000 is divided as follows:

Facilities for which funds have been provided previously	$41,602,000
Not previously provided	6,898,000
Cash for liquidation of prior year contract authorization	21,000,000
Operation and maintenance	5,500,000
Total	$75,000,000

◆

Survey points materials for southern cement plant

"A survey already made by the special committee set up by the 1949 Legislature indicates that raw materials are available for the production of cement" in North Carolina, according to Governor Kerr Scott.

One of the largest manufacturers has evidenced interest in establishing a plant in the state to produce cement, he added.

Formal report of the committee is expected to be filed soon. It will embody a two-year study.

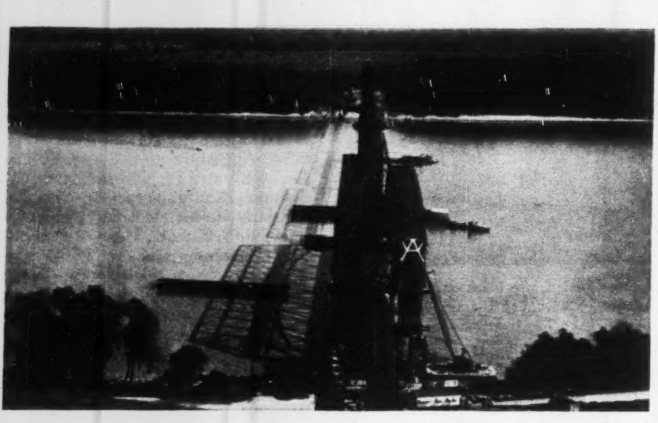
Ontario Hydro makes plans for big plant at Niagara

Preliminary planning has been started by the Hydro Electric Power Commission of Ontario for a great new power station that is made possible by the recent agreement between this country and Canada for added diversions of water at Niagara Falls for power purposes. The new plant will be built near the present Queenston plant about three miles below the falls. It will contain six units of 100,000 hp. each and will be served by a tunnel from the diversion point above the falls.

Part of the water used in the new plant is now used in two old plants adjacent to the falls which have heads of about half the head that can be developed at the new plant below the rapids in the gorge.

An access road about 7,000 ft long from the general land level at the top of the gorge down to near the new powerhouse will be among the early undertakings. Upon completion of the project this road will be turned over to Niagara Parks Commission as a new scenic highway.

The power project is scheduled to begin operation in 1954.



Old spans move out . . . new spans in; on the ICRR

CONSTRUCTION KNOW HOW, plus a bold approach to some unusual erection problems are paying dividends on a big bridge job at Cairo, Ill. The Illinois Central is replacing 3,888 ft of superstructure on its old bridge over the Ohio River, erected in 1887-1889.

Three existing piers are being jacketed with reinforced concrete, and three new ones are being built. No rehabilitation is needed for several hundred feet of approach spans which were rebuilt in 1935.

There are 9 old single-track Whipple truss spans to be removed. Six of these spans—two at 518 ft and four 400 ft long—are being replaced with single-track, through-type Warren trusses of the same span lengths. The other three old spans, each 400 ft long, will be replaced with six 200-ft deck-type Warren trusses (ENR Apr. 13, 1950, p. 41). Each old 518-ft span weighs 1,100 tons; the new spans weigh 1,650 tons each.

Extreme fluctuations in the river level, deep water in the main channel, and the requirement that rail and water transportation be inconvenienced as little as possible—all added to the problem of erection.

Several erection schemes were considered, but the height of the bridge—about 110 ft from top of rail to low water level, and about 30 ft on down to river bottom—virtually ruled out using standard falsework bents and cantilever erection. The method finally adopted involved the erection of each new span on special falsework adjacent to the one it was to replace. Then, while railroad traffic was detoured over another route, the old span was moved out onto temporary falsework and the new span moved into place. Later, the old span was dumped into the river and cut up for salvage.

- **One span completed**—Each of these four steps required extraordinary planning and ingenious methods of execution. Starting at the west end of the main river crossing, the contractors have successfully replaced the first old 518 ft Whipple truss span with a new span. Briefly, this is how they did it:

A falsework bent of steel H-piling was driven at the downstream end of each pier, and one midway between the piers. The longest piling were 120 ft. Two lines of erection trusses, spaced 18 ft apart, complete with bracing and floor steel, were placed on the bents. And finally, the new truss span was erected on top of the erection trusses.

Erection bents at the two piers were unusual in make-up. The downstream leg of each bent was carried on standard column-and-beam grillage supported on a cluster of H-beam piling driven into the riverbed. The upstream leg of the bent, however, rested on a projecting shoulder of the old pier about halfway between top of pier and water level. A reinforced concrete block poured in place on top of this shoulder supported the upstream leg of the falsework bent and insured uniform transfer of erection loads to the old pier.

- **Erection trusses**—The 518-ft length of erection trusses included two 200-ft deck truss spans that will be incorporated in the completed bridge. This method of using final truss sections as erection trusses in the early part of the job is not new, but the scheme for their erection on top of the falsework bents is both a novel and practical idea.

Both 200-ft truss spans were lengthened to span between the bents, by adding 59 ft of truss members, bracing and floor steel. This extension was added at the ends of the erection trusses supported by the center bent. The 200-ft trusses have parallel chords; the 59-ft extensions are deepened at their outer ends to reduce the height of the center bent.

Getting the erection trusses on top of the falsework bents was a marine operation. Each 259-ft set of trusses was erected on special barges anchored just below the bridge site, then floated into place and raised onto the bents.

• **Telescoping erection towers**—The nucleus of this operation was the two erection barges. They were placed 48 ft apart and securely braced and strutted together to make them act as a unit. Each 126x26x11-ft barge mounts a four-leg telescoping tower made up of vertical steel beams spaced 18 ft parallel to the centerline of barge and 24 ft 8-in. (one truss panel) in the other direction. The erection trusses were assembled on top of the towers by a barge-mounted 90-ft stiffleg derrick, using the cantilever method of erection. The double telescoping towers provided supports at four panel points of each 259 ft erection truss; leaving about 75-ft cantilever at one end and 84 ft at the other.

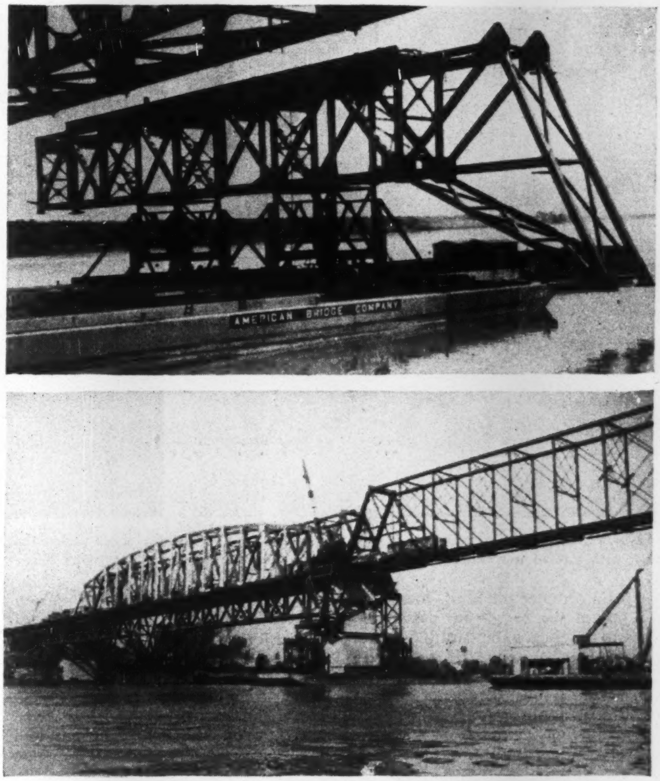
The telescoping towers had to be designed for an unusual amount of extension and retraction, due to the extreme fluctuations of river level between high and low water. They can be retracted to where their tops are only 11½ ft above the top of barge, or extended to a height of 71 ft.

At maximum extension and under full load, each tower column has a total wind and dead load reaction of 246,000 lb. Four 500-ton hydraulic jacks operate each tower.

• **Erecting the main trusses**—After the erection trusses were in place, the next big job was that of erecting the new span. A cantilevered erection bracket had been added at the shoreward end of the erection trusses. A 60-ton, 85-ft boom railroad crane was moved out onto the existing railroad track and shifted sideways onto the bracket. This move was performed between trains to avoid interrupting rail service.

The new trusses in the 518-ft spans are 70-ft deep and spaced 25 ft c-c. Their erection, as well as that of the bracing and floor steel followed conventional procedure. The crane backed up as it erected steel from the shoreward pier out to the next one. In the meantime, the erection bracket was dismantled and reassembled on the other end of the erection trusses, to support the railroad crane upon completion of the main truss span. Succeeding spans will be erected in similar fashion, by shifting the cantilevered bracket, as needed, from one end of the erection trusses to the other.

Steel for the main spans was floated in by barge and hoisted into position by the railroad crane. A derrick barge, mounting a crane with 100-ft boom and 30-ft jib, dismantled and re-erected the cantilevered platform.



ERECTION TRUSSES were installed on barge-mounted telescoping bents (upper photo), floated into position and set on falsework bents to support the new 518 ft spans (lower photo).

• **Moving the old span**—It took only 57 minutes to roll the old 518-ft span out of the way. But this operation also took a lot of advance planning and preliminary work. H-beam pile bents were driven at the upstream ends of the two piers to receive the old trusses. They were similar to the ones at the other ends of the piers except that they were capped with a special beam. No center bent was needed for the old span.

One of the big problems was how to salvage the old spans after they had been pulled out of the way. The final plan was to dump them into the river, and remove them piecemeal.

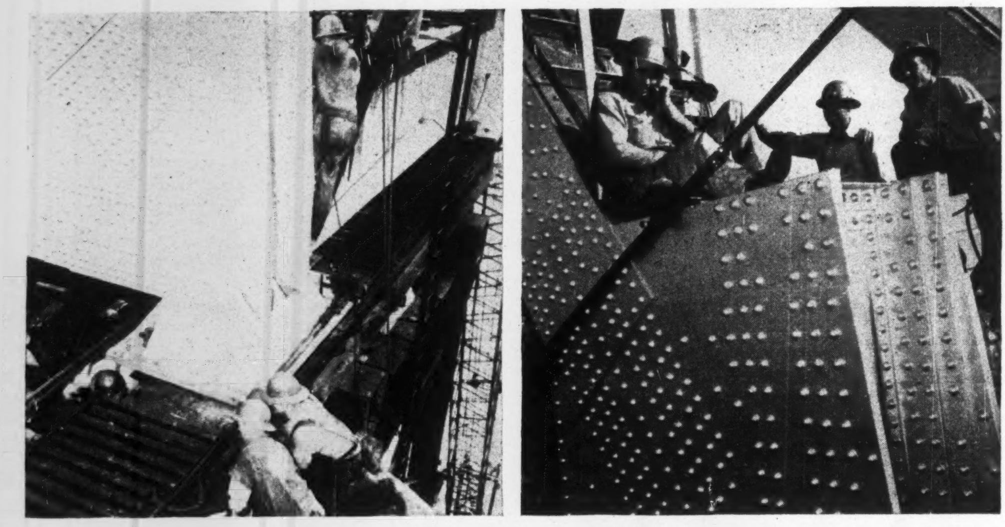
Calling on experience gained in launching ships during the war, the contractor designed a launching sled as a cap for the pile bents. The old span was moved over onto these sleds, and later dumped into the river. Both the old and the new span were moved sideways on a series of 3-in. stationary rollers held in line by 3x3-in. guide angles.

To move the old span, it was first necessary to cut away part of the truss shoes. Then the trusses were picked up with four 100-ton hydraulic jacks at each shoe and the rollers inserted between shoes and pier caps. Cables were attached to pins and plates welded to each shoe, and all was ready.

• **Complicated cable system**—Both truss spans were pulled sideways by a complicated system of wire rope lines running to a hoist barge anchored upstream from the center falsework bent. The entire cable system was reeved up to insure both ends of the trusses moving at the same speed, to prevent jamming of the rollers.

The hoist barge was anchored upstream to two 20-ton concrete anchors in the river bottom, by a two-part line of 1-in. wire rope to each anchor. The downstream end of the barge was held in position by two 1½-in. manila ropes running from the corners of the barge to the center erection bent.

The ¾-in. wire rope load line from



STEEL CABLES pinned to a double channel yoke bearing against the shoes pulled the new truss span sideways on small rollers (at left), with rate of movement controlled by telephone communication (at right) between hoist barge and truss bearings.

the main drum of the hoist—located in the rear of the barge—was passed forward to a 3-sheave standard block near the front of the barge. It was reeved into a 6-part line between this block and a similar one between the barge and the erection bent.

For moving the old span out of the way, two lines from this block were carried through a sheave block anchored to the erection bent, and over to blocks just above the water line at the upstream end of the old piers. From this point a 12-part line was carried up vertically to near the bridge seat elevation. The upper end of this 12-part line engaged four 1⅛-in. wire ropes that passed over sheaves at the top of the erection bents, and extended along the top of the old pier to engage the two truss shoes on each pier.

The wire rope arrangement for pulling the new span 34-ft upstream into final position was similar except an extra set of vertical block and falls were run up the upstream end of the center bent and over to engage the bottom chords of the main trusses. This third set of falls, however, was used only in making the first 16-ft move; the remaining 18 ft of movement was by the lines attached to the end shoes. It took an estimated 60,000-lb pull to move the new span, and somewhat less for the old span.

In erecting the new truss span on the erection trusses, one upper chord joint of each truss near the center of span was left unbolted. This had the effect of making each 518-ft truss act as two simply supported 259-ft trusses; one-half the dead load being carried on the center bent and one-quarter on each falsework bent at the two piers.

Preparatory to moving the new truss span, six 500-ton hydraulic jacks between end floor beams and end bents, and between the center floorbeam and the center bent, picked up the span for insertion of the rollers.

• Two moves for the new span—The trusses were lowered onto the rollers and the new span moved 16 ft upstream. At this point each upstream shoe was resting on rollers on the old piers. The top chord of each truss was closed, and bolted, and the truss swung free of the center bent. This left one-half the dead load reaction delivered to the piers, and one-quarter to each of the end bents.

The next move was 18 ft into final position.

Train operations were interrupted only 20 hours while the first old span was moved out of the way, the new one moved into position and all track and signal work completed. The new span was completely tracked from end to end at the time of its being erected on the erection trusses.

Train service was cut off and preparations for the move were begun at 6 am Oct. 16 (ENR Oct. 26, p. 25). The old span was ready to be moved by 9:30 am; 57 minutes later it had been moved 33 ft out onto the launching sleds.

The initial 16-ft move of the new span was started at 1:30 pm and completed in 27 minutes. By 4 pm the new span had been swung free of the center bent, ready for its final 18-ft move, and by 5:30 pm it had been rolled into final position.

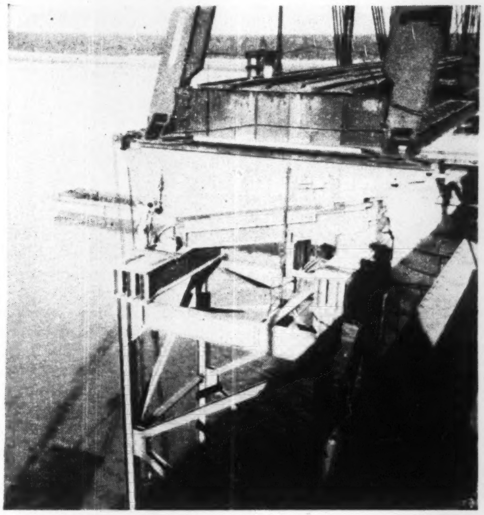
The spectacular part of replacing the first old 518-ft span with the new one had been finished, to the mutual relief of those in charge of operations, the workmen and a host of observers. But there was still a lot of work to be done to remove the rollers, seat the truss shoes and roller nests on the piers and connect the new track with the old. This was completed by 2 am Oct. 17, and the first train passed over the bridge about an hour later.

• Safety; not speed—No attempts were made to set any speed records in bridge moving; the main emphasis being on safety of operations. And in this the contractors were entirely successful; the only mishaps being that one steel foreman skinned a knuckle and one photographer pinched his hand on his own tripod.

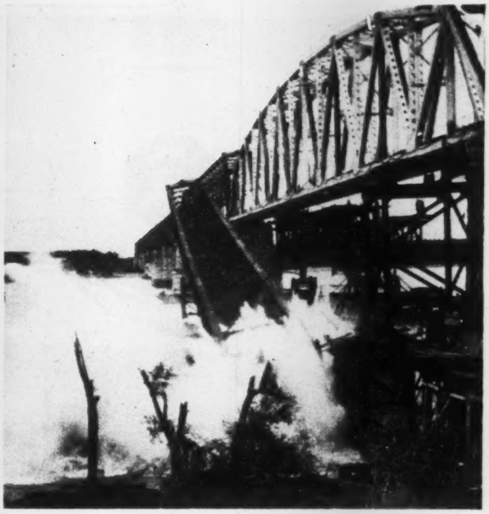
Control of all truss movements during the shifting of the old and the new spans was by a 4-way telephone line between operators stationed at each end of the truss span, in the center of the new truss, and in the hoist barge.

• Dropping the old span—After the old truss span had been stripped of its rails, ties, fastenings and as much main material as possible, it was dropped 100 ft into the river on Nov. 8 (ENR, Nov. 23, p. 23). It hit with a mighty splash.

The big trick in this operation was to release both launching sleds simul-



MONSTROUS STEEL SLEDS support the old truss span preparatory to launching it into the river for salvaging.



SUPERSTRUCTURE REPLACEMENT will be repeated span-by-span until 9 old spans have been moved out. (U. S. Steel photo)

taneously so each end of the span would hit the water at the same time.

Originally the trigger devices on the sleds had been held in position with steel rods connected to steel counterweights. These rods were replaced with cables, which were carried out and joined to a common plate at the center of the new span. When this plate was burned in two it released the cables and tripped the triggers simultaneously.

To expedite salvaging of the old truss, identifying buoys were attached by long wire ropes to the different truss sections. Starting at the shoreward end, the old trusses are being raised by derrick barges; sections are burned off and removed, to clear the channel and restore it for navigation.

The same procedure of erecting new trusses, moving the old ones out of the way, rolling the new ones into position and salvaging the old trusses will be followed span-by-span for the remaining 8 spans of old trusses and the 11 spans of new trusses. The telescoping barges will move the erection trusses onto three-bent falsework in the succeeding spans.

After the two 518-ft spans have been been erected, the 259-ft erection trusses will be shortened to 200 ft to make erection trusses for the four 400 ft spans. And eventually they will become final trusses in the completed spans. The four remaining 200-ft spans will be erected on the erection barges and floated into place.

• Bridge erection in 1888—Erection methods for the new superstructure are a far cry from those employed in erecting the old bridge. According to a published account in the Jan. 11, 1889 issue of THE RAILROAD GAZETTE it took the Union Bridge Co. nearly three years (1887-1889) to erect the 10,560 ft of bridge and trestle work at each end.

The trusses were erected during low water, on timber falsework driven into the riverbed. Trusses were erected by a 4-leg traveler operating on top of the falsework. Only 10 days—a record at that time—were required to erect two 518-ft trusses complete with top lateral bracing but exclusive of floor steel and bottom lateral bracing. The old trusses in these two spans were 61 ft deep c-c chords, with panel lengths of 30 ft 5 in.

The material was delivered to the site by barge, hoisted up to deck level by a railroad derrick, and delivered on push cars to the traveler. Hoisting engines for the derrick and traveler were of the "six-pull" type. They were designed by Wm. Baird and built in the early 1800's by J. S. Mundy, of Newark, N. J.

Average daily crew included 12 men in the storage yard and at the derrick, and 12 delivering steel to the traveler. The erection gang proper for each truss included: 8 men on the top scaffold of the traveler; 4 on the middle scaffold; 8 at the foot; 2 at the ropes, 2 at the engine; 1 engineer, and 4 roustabouts.

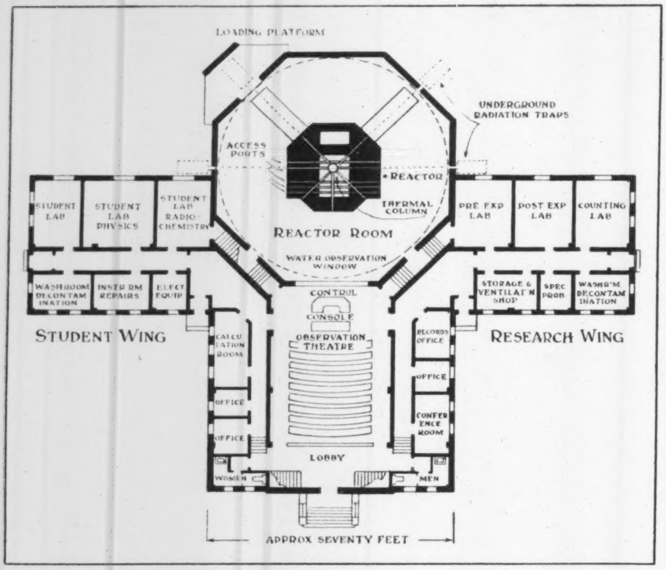
After the first 518-ft span was completed, falsework bents were removed, piling was pulled and redriven in the second span and falsework bents re-erected. Even with erection equipment available at that time it took only 33 days to erect both 518 ft spans including the moving and re-erection of a span of falsework.

• Men in charge—All superstructure work including fabrication and erection of new trusses and removal and salvage of old spans is being done by the American Bridge Co. Erection procedures were worked out by the Pittsburgh District office under the supervision of A. S. Marvin, division engineer and A. F. MacDonald, design engineer, in collaboration with Illinois Central Railroad officials and Modjeski and Masters, consultants.

Erection procedures are under the supervision of Alan A. Porter, manager of erection, Chicago District office, and A. J. Anderson, erecting engineer. Wallace B. Hunter is contracting manager. Field engineers of the American Bridge Co. in direct charge of operations include: G. O. Edmonds, project superintendent; Carroll C. Petersen, senior field engineer; Frank I. Liles, junior field engineer; and Fred Robinson, assistant superintendent.

All substructure work is being done by the Kansas City Bridge Co. and Massman Construction Co., joint venturers. R. D. Bleich is construction superintendent. C. H. Mottier is vice president and chief engineer for the Illinois Central, and M. Block is bridge engineer. R. P. Holly is resident engineer for the consultants.

Completion date for the entire $6,300,000 project is set for Oct. 1, 1951.



FLOOR PLAN of nuclear-reactor building at North Carolina State College, Raleigh.

First privately owned reactor has built-in safety features

EARLY THIS YEAR, construction will start on the first privately owned and operated nuclear reactor. It will be erected by the North Carolina State College on its campus at Raleigh, N. C.

As described in NUCLEONICS, Dec., 1950, this reactor will be of the water-boiler type, designed for a maximum power output of 10 kw.

• **Reactor design**—It will consist of a 12-in. dia cylindrical fuel chamber of stainless steel and a concrete shielding structure from 4 to 6 ft thick. Octagonal in plan, the over-all assembly will be about 17 ft in diameter and 10 ft high. Portholes 4 in. in diameter will permit access to reactor radiation for experimental purposes.

The fuel chamber will contain about 2 lb of enriched uranium in the form of uranyl sulfate dissolved in water. Attached to or embedded in the fuel cylinder will be cooling coils, control rods and sampling lines. All this apparatus will be located in a cavity near the center of enclosing layers of graphite (for neutron reflection) and lead and of the concrete shielding structure.

A control console for the reactor will be located in an adjacent room. It will be connected by an instrument trench under the floor with the measuring and controlling devices inside the reactor.

The North Carolina State College reactor will be similar to the 6-kw reactor at Los Alamos Scientific Laboratory, N. M.—smallest and most economical type of chain reactor built to date. This one has a 1-ft spherical stainless steel container filled with a uranyl nitrate solution in water. It is surrounded by a reflector, or tamper, consisting of an inner core of beryllium oxide supplemented by a shell of graphite, which occupy a 5-ft cube. And around this whole assembly are 4 in. of lead, 1/32 in. of cadmium and 5 ft of concrete.

• **Hazards**—According to Clifford K. Beck, of the North Carolina State College department of physics, no misoperation of the reactor or failure of safety devices can cause a major catastrophe. It would be virtually impossible, he claims, even by deliberate effort to cause a nuclear explosion in this type of reactor. Greatest possible hazard is that which could result from sabotage. Many devices, locks and interlocks are incorporated in the design of the reactor and building to minimize this possibility.

Danger of personal injury from radiation will be reduced through rigid control of operating procedures, physical barriers adjacent to beam paths through open portholes, and enforcement of safety regulations. Since the control room is separate, an experimenter rarely will be in the reactor room when the nuclear reactor is in operation.

Heat will be removed by circulating water inside the fuel chamber. Gaseous decomposition products, contaminated by radioactive fission products, will be handled in a separate gas disposal unit. There, the hydrogen and oxygen, which make up the bulk of the decomposition gases, will be recombined, to reduce the volume and eliminate a gas explosion hazard. Residue gases will be stored in a tank until the radioactivity has decayed to tolerable limits. Then, they will be disposed of by blowers to the atmosphere through a 120-ft stack.

• **Reactor building**—The reactor room will be incorporated at the intersection of the three wings of a T-shape building containing 12,000 sq ft of floor area and 300,000 cu ft of space. The reactor will be located at the center of this room, with at least 30 ft of clear space between any side and the nearest wall. The floor level in the room will be 6 ft below grade, so that horizontal radiation beams that emerge from the reactor will pass through narrow openings in the building walls to underground radiation traps buried outside the building.

Ceiling height will be 35 ft. Above the ceiling will be blowers, filters and ventilation equipment.

Walls of the reactor room will be of 16-in. thick masonry and steel (for supporting a 10-ton crane). On one side, adjacent to the control room, there will be a 16-in. thick water observation window. Numerous crash doors will serve as emergency exits.

The three wings radiating from the reactor room and forming the T-shape are a laboratory wing, a student wing for training students in nuclear techniques, and a control-observation-administration area.

Laboratories will have facilities for radiochemical work and radioactivity measurements, in addition to the usual research facilities. They will be air conditioned. Means for checking and eliminating radioactive contamination, including lockers for clothes-changing and washing facilities, will be provided near normally used entrances.

Latest estimates place the cost of the reactor and building at about $350,000. Construction is expected to take one year.

NORTHAMPTON, PA.

Water Treatment Plant

(COMPLETED IN 1950)

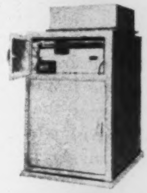
ALBRIGHT & FRIEL, INC.
Consulting Engineers
Philadelphia, Pa.

JAMES C. DeGROOT
Manager
Northampton Water Treatment Plant

BIF Industries Equipment furnished for the Northampton Water Treatment Plant:

Omega #1 Loss-In-Weight Gravimetric Feeders equipped with extension hoppers and hopper agitators, non-flooding devices, stainless steel mixing chambers with high speed mixer, and dust collector—for feeding lime and soda ash.

Omega #2 Universal Feeders with extension hoppers, agitators, and dust collectors — for feeding lime, soda ash, alum, and carbon.



This modern water treatment plant stands as a tribute to the coordinated efforts of municipal authorities, design engineers, and construction contractors. To provide a quality supply of 3 MGD, max., for 28,000 residents of Lehigh and Northampton Counties, the plant employs the latest in water filtration, softening, and treating techniques. From the filter beds to the clear well, from the chemical feed room to the laboratory, every detail of the plant is designed to assure efficient water purification.

Omega Chemical Feeders, specified by the engineers and installed by Roberts Filter Co., Darby, Pa., deliver alum, lime, soda ash, and carbon at rates required by the flows through the plant. These Feeders make it possible to supply a finished water that's clear, soft, and of desirable taste and odor characteristics.

For Bulletins describing Omega Chemical Feeders, address Omega Machine Company (Division of Builders Iron Foundry), Providence 1, Rhode Island.

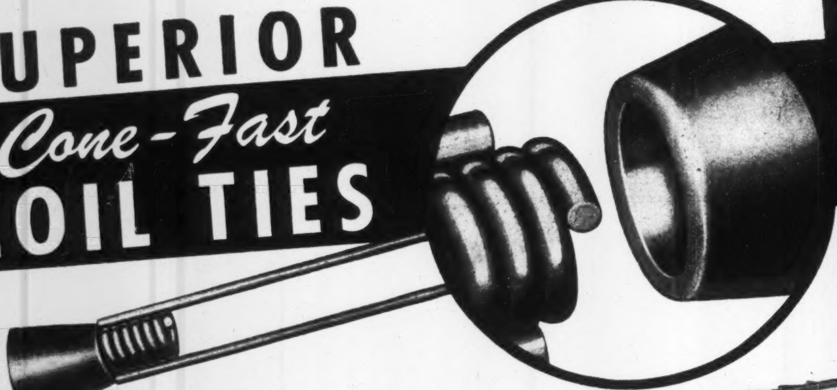
BIF INDUSTRIES

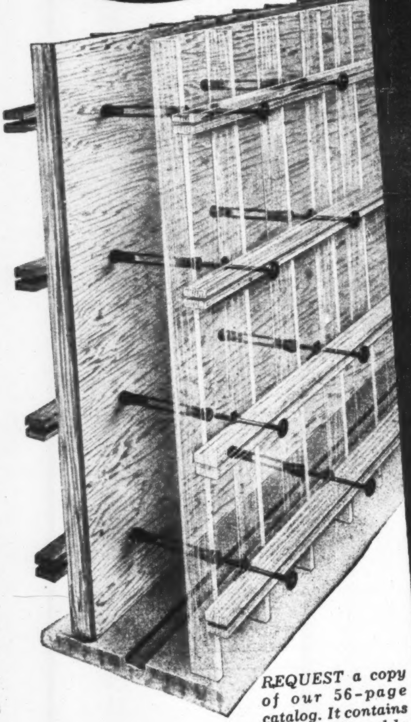
OMEGA MACHINE CO.

THE LAST WORD IN FEEDERS

Ω OMEGA

SUPERIOR *Cone-Fast* COIL TIES





YOU CAN CUT YOUR FORM COSTS!

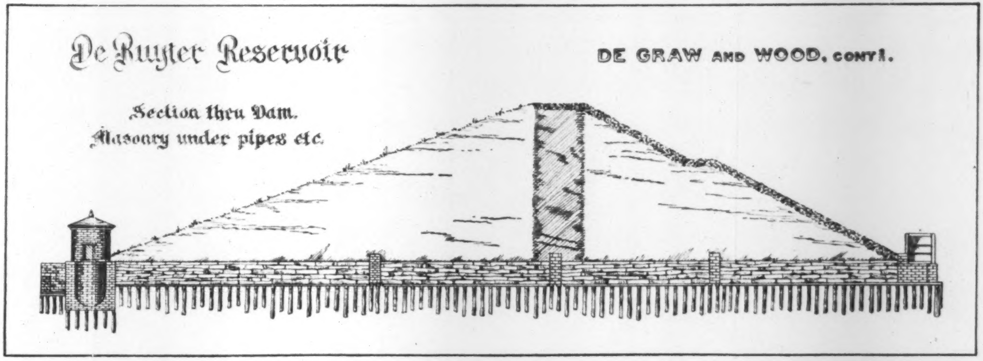
Because the cost of form work is a prime factor in the total cost of bridge piers and abutments, retaining walls, filtration and sewage disposal plants, and other engineering projects, it is obvious that the forming phase offers the greatest opportunity to save material and reduce labor costs.

The use of Superior Cone-Fast Coil Ties is one direct means of cutting costs and here's why: The *exclusive* feature of this tie is the extension of the coil beyond the ends of the wire struts (enlarged detail above) which allows a reamed Coil Cone to be fitted snugly in place before the opposing panel is erected. No separate gadgets are required. Cone-Fast ties are practically a "must" when large panels are used on walls where the workman cannot get inside the forms. Cone pointed Coil Bolts are easy to engage because of the large square openings in the cones. Bolt Holders (shown on panel form) keep bolts and washer on panel when stripping and moving for reuse.

Cone-Fast Coil Ties are available for Coil Bolts ½" to 1¼" in diameter and can be used with all types of forms. All working parts are returnable for credit. For maximum efficiency plan your form work with SUPERIOR Cone-Fast Coil Ties.

REQUEST a copy of our 56-page catalog. It contains a valuable table for spacing studs, wales, and form ties.

SUPERIOR CONCRETE ACCESSORIES, INC.
4110 Wrightwood Avenue, Chicago 39, Illinois
Pacific Coast Plant: 2026 Livingston St., Oakland 6, Calif.
New York Office: 1775 Broadway, New York 19, N. Y.



AGED AND AILING—DeRuyter Dam in the old Erie Canal feeder system now leaks so badly it's unstable, and something's being done to save it. Its embankment is random fill, largely silty, which lacked present-day control and compaction. Center core shown on this old contract drawing was puddled for somewhat greater impermeability.

Old but not unwanted—dam gets seepage repairs

EIGHTY-SEVEN-YEAR-OLD earth dams are not too numerous—yet. But they will be. And many will develop seepage troubles, as has DeRuyter Dam near Syracuse, N. Y.

De Ruyter's seepage has resulted in piping, and several slides have occurred on the structure's down-stream slope. Steps are being taken to save the dam by collecting the seepage—rather than cutting it off—with a system of drains.

• Choice of method—Costs dictated choice of method. The New York State Department of Public Works wants to put no more money than necessary into the aged and ailing structure, for it has about outlived its intended use—storage of feeder water for a high-level length of the old Erie Canal near Rome, N. Y. Now, recreational benefits come first, and the remote possibility of future use for feeding the New York State Barge Canal is secondary. However, it remains a responsibility of the public works department.

Stopping the seepage would have been more costly than relieving it; no upstream cut-off could correct the existing saturation.

Methods were considered involving injection of emulsified asphalt to build an impervious core, grouting to form a cut-off, buried membranes in the upstream slope, slope paving with concrete slabs, soil cement and bituminous blankets.

One by one these means of keeping water from entering the embankment were discarded in favor of a method which actualy would help water through the structure, but preserve the embankment's stability in so doing.

It was found cheaper to attack the leakage problem from the downstream face.

• Drains to do job—Some 1,350 ft of underdrains are being buried in the completely saturated downstream slope. And to stabilize it further, the slope is to be loaded with a surcharge of dry soil to balance upward seepage forces.

In 1940 a gravel-filled timber crib 295 ft long was built on the downstream slope above the valve-house in an effort to stop sloughing. It was not permanently successful.

HISTORICAL NOTE

De Ruyter Dam was built in the years 1861-63. It is located in the southwest corner of Madison County in upstate New York, about 25 miles south of the Erie Canal for which it was to impound water. De Graw & Wood was the construction company that first contracted to build the structure on Mar. 29, 1861. Then came the Civil War with its drain on local manpower. The contractor had to pull out and was paid $78,760 for what he had done; completion per plan by 1862 was impossible. A second contractor, Charles Nichols, took over the job and finished it by Dec. 17, 1863, for an additional $44,150; total cost of the whole project was $122,910.

In 1948, a toe drain alongside the valvehouse was installed. It picks up quite a bit of water and is apparently functioning as designed, but it doesn't reach seepage pocketed farther up on the slope.

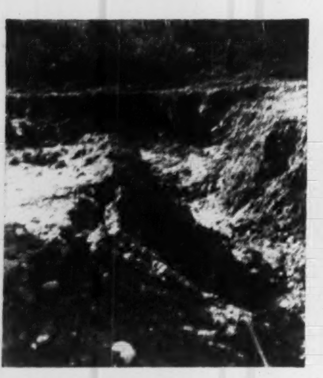
The present effort—far more extensive—is based on a study of seepage flow nets as determined from geological inspections and water well logs and is being undertaken with the possibility that no further (upstream) work will be required.

Upstream repairs, if any, probably would not be an attempt to make the dam leakproof; rather, they would be a flattening of the upstream slope (to 1 on 3 instead of the present 1 on 2) as a precaution against sliding. There is no need to make the dam completely leakproof because water loss is of no concern.

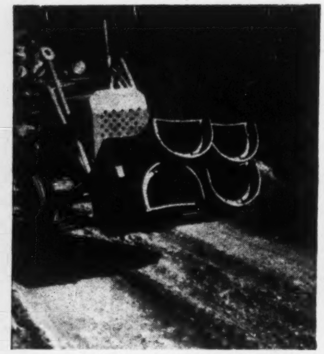
• Drain plan—One line of drains is to be high up on the embankment, only 70 to 95 ft downstream from the crest of the structure. This line will be 1,200 ft long, extending roughly from station 1+00 to 13+00 along the 1,680-ft long dam. Its invert will be 25 to 35 ft below the dam's 72-ft high crest, buried in a 5 to 12-ft deep trench.

Two interceptors will take off downslope from manholes on this upper line, roughly at stations 3+50 and 7+00. One of these will tie into the old toe drains installed two years ago, the other into a new lower drain running from sta. 5+00 to 7+00. This lower line is going in 180 to 190 ft downstream from the crest and about 60 ft below it in elevation, just upstream from the valve-house.

Final outlet of the new underdrain system will be through a line empty-



MUD HOLES like this developed, as saturated silt slid away on the dam's downstream slope.



DRAIN PIPE to the rescue. That used is half-circular in section and has lugs to keep joints open.

MANHOLES in the drain lines are reinforced concrete pipe set on cast-in-place slabs embedding drain pipe.

ing into the discharge channel below the valve-house.

• Drain section—Design of the underdrain cross-section (see drawing) is being followed rigidly in construction. Trenches for drains are dug 4-ft wide and a minimum of 5 ft deep by a backhoe. Trench bottoms are 12 in. below invert elevation of the pipe being laid.

A 6-in. layer of sand is put down first, then a special job-built steel form (see photo) is put in the trench for proper separation of sand and crushed stone that form the drain.

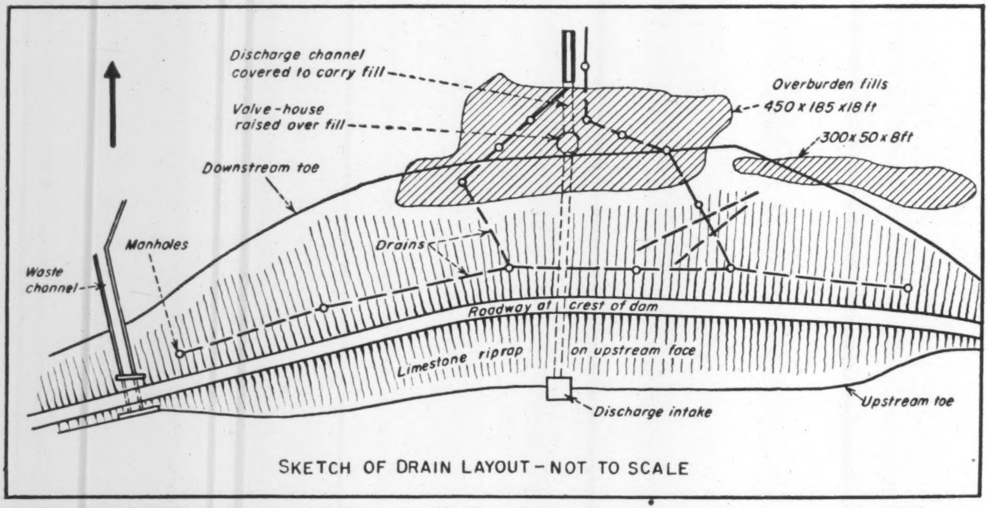
This steel form is made up four 4x10-ft sheets of $\frac{3}{16}$-in. thick plate spaced by welded steel rods. It permits fast and accurate refilling of the drain trenches, gives a 2-ft 6-in. width of crushed stone inside 9-in. wide filters of sand that are to keep silt from coming in to clog the drain.

The pipe itself is set on 6 in. of crushed stone and 6 in. of sand. It is a 12-in. dia. half-circular-section vitrified clay pipe which comes in 2-ft lengths. Bell halves of its bell-and-spigot joints have lugs that prevent tight fit, thereby making it an open-joint line for underdrain use. Further, the pipe's flat top is slightly concave, designed as a channel to carry water down to the next open joint.

Manholes are put at all drain junctions and changes in line and grade. Precast, reinforced concrete pipe of 4-ft dia is used in 3 and 4-ft lengths for the manholes. These are founded on cast-in-place unreinforced concrete slabs 5 ft square and 19 in. thick. The clay drain pipes are cast right into these slabs, flush with their tops. A 2-ft gap is left between incoming and outgoing pipes (see photo).

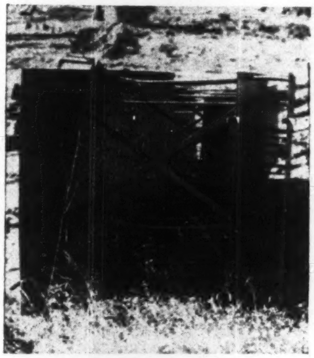
Lids for the manholes are circular, precast, reinforced concrete slabs with round access openings to be closed with removable cast-iron covers.

• Surcharge raises slope—Most manholes have been built, at least partially, above grade of the present downstream slope. They had to be extended up high enough to clear the surcharge fill yet to be placed. Fill will extend over

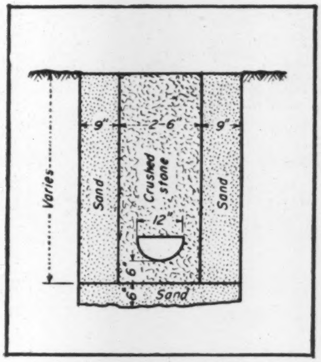


SKETCH OF DRAIN LAYOUT – NOT TO SCALE

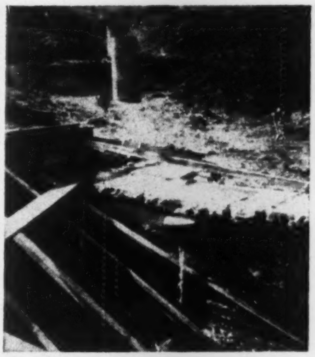
DRAINS AND SURCHARGE are hopefully expected to do the trick. One line of pipe will drain the embankment high up on its slope; others will carry water down and out of the structure. Surcharge fills are intended to counteract upward water pressures, restoring the structure's stability.



TRENCH-FILLING FORMS were job-built for quickly placing crushed stone and sand filters around drain pipes.



DRAIN SECTION is constructed accurately and easily with help of the welded steel forms.



OPERATING DRAIN empties into discharge channel after collecting water along line of extended manholes

a 450-ft length of the embankment and be 185 ft wide at its greatest width. Its height will vary up to 18 ft.

In building up this overload, a 2-ft thick pervious layer will be put on first as a horizontal drain. Then a 1-ft thick impervious layer will go on with random fill from there up.

The valve-house, too, must be heightened to clear this new surcharge. And a concrete slab had to be put over 75 ft of the discharge channel below the valve-house to carry the new fill.

Valve-house extension means pouring 13 ft of reinforced concrete walls and erecting a new steel frame and sheet conical roof on the present stone walls of the octagonal-shaped structure. The old access door has been concreted in; access will be through a hatch in the new roof.

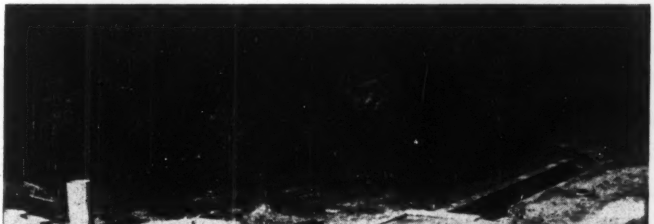
The new fill-carrying slab over the 11-ft wide discharge channel is 18 in. thick and 17 ft. wide. It has bottom reinforcing only (1-in. rounds at 4¾ in. centers in the principal direction) with every third bar bent up to take shear.

Present repairs do not require the lake to be drained—Just lowered 12 to 13 ft below spillway crest. However, it is worth noting that discharge control (three gate valves on 12-in. cast-iron lines carried through the dam in masonry on piles) is in the valve-house on the dam's downstream side. There is no control—just a crib intake—upstream.

Even to find if these discharge pipes might now be leaking would mean lowering the lake. The upstream ends of the pipes would have to be sealed. Then, with the downstream valves closed, water would be put in the pipes under pressure—any pressure drop indicating leakage.

The Department of Public Works, doing the present job with its own forces, hopes no such further work will be required.

William Robinson, district engineer in whose district the dam is located, is responsible for the work. M. W. Hawk is project manager, and C. E. Greenfield is field superintendent. Bertram D. Tallamy is superintendent of public works for New York State.



MAKING READY FOR FILL—At the downstream toe the valve-house walls had to be heightened, and a slab was put over part of the discharge channel to carry the surcharge to be placed for stability.

Water co. asks rate boost to finance improvements

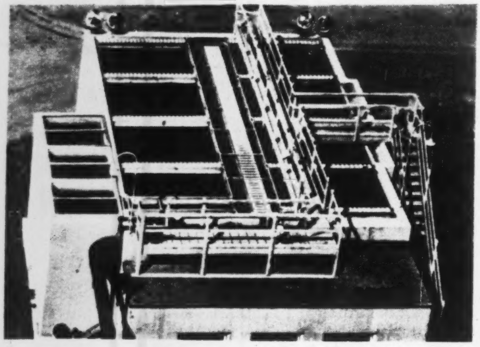
The Indianapolis Water Co. has asked the Indiana Public Service Commission for a rate increase just under 25 percent which would bring in a much needed $1,000,000-a-year revenue increase.

Hardest hit by the new increases would be small domestic users, which includes all citizens.

Objective, according to Alfred O. Norris, executive vice president, is to put the utility in financial position to market additional bonds for a large improvement program to cost $14 million. A reservoir and plant improvements are contemplated to bring the system to needed capacity.

Thirty percent of the total area needed for a reservoir has been acquired on Cicero Creek, a tributary of White River north of Indianapolis.

SLUDGE BLANKET fresh and active at all times!



• **Operating on the principles of precipitation, adsorption, settling and upward filtration, the Permutit Precipitator lends itself to a variety of applications besides softening: removal of turbidity, color, taste, odor, alkalinity, silica, and fluorides.**

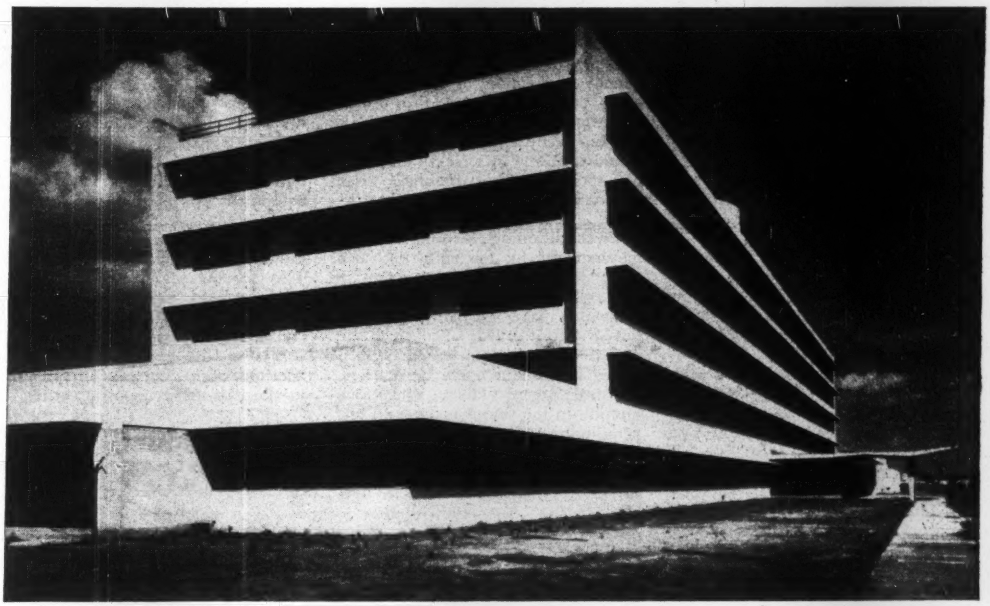
Write for full information to The Permutit Company, Dept. ENR-1, 330 West 42nd Street, New York 18, N. Y., or to Permutit Company of Canada, Ltd., 6975 Jeanne Mance Street, Montreal.

Permutit®

Water Conditioning Headquarters for over 37 years

IMPORTANT OPERATING ADVANTAGES:

1. Saves you up to 50% in space
2. Saves you up to 40% in chemicals
3. Saves you up to 75% in time
4. Short detention time
5. Uniform sludge filter
6. No settling of precipitates
7. High adaptability to variable flow rates



Sunshades over windows help air conditioning beat Baton Rouge's hot climate in . . .

Office building designed for flexibility

PRIME FACTOR determining the design of the Esso Standard Oil Co. office building at Baton Rouge, La., was the owner's need for efficient, flexible working space. Problems created by this requirement—by the hot, humid climate and existing site conditions—were cleverly solved by the architects and their consulting engineers.

The necessity of air conditioning this 6-story, 72x336-ft structure, in particular, called for considerable ingenuity.

Studies of office buildings for other industrial plants indicated that needs of various departments for space tended to change continually. In one large building investigated, 50% of the offices were moved within six years after construction.

Convinced, therefore, that office space must be designed for quick and economical change, the building's planners then agreed on other design criteria: Economy of plan and materials, direct circulation, ideal conditions for efficient work, and proper integration of departments.

• **Factors controlling size**—A long rectangular shape was chosen for the building because of advantages in direct circulation of interoffice traffic and because of economy in construction. Length of all floors, except the first, was established by the maximum convenient walking distance from elevators. Experience with Rockefeller Center indicated this distance to be 175 ft for straight corridors. Consequently, since elevators are centrally located, floors were made 336 ft long.

The 72-ft width was determined after numerous studies of practical office layouts. This figure was also considered economical from a construction point of view. Greater width results in too much central dead space; less width requires relatively more exterior wall area, which is undesirable in an air-conditioned building.

The 6-story height was arrived at through a logical distribution of Esso's space requirements on each floor. In making this calculation, the relation of one department to another and limitations of length and width were major considerations.

• **Circulation**—Vertical traffic is handled mainly at the center of the building, where there are three 20-passenger elevators and a stairway. There also are two stairways at the quarter points of the building. The stairs were designed to attract interfloor traffic, to lighten the load on elevators. To meet requirements for future expansion, an extra shaft was inserted at the center of the structure.

Quarter-point stairs, toilets, fan rooms and other services are compactly housed in one interior bay, leaving the areas adjacent to exterior walls for office use. To make the most of the perimetrical space, a double-corridor system is used where there are mostly private offices requiring outside light. Otherwise, one off-center corridor serves.

A cafeteria, seating 450 persons and supplying hot meals for distribution to employees within the plant, is located in a separate 2-story building. It is connected with the office building by a covered walkway, for protection from rain and sun. Also, covered walkways lead to parking areas, which accommodate 365 cars.

• **Modular design**—The plan for achieving flexibility was based on complete standardization of interior space. For this purpose, a 4-ft module was adopted for air-conditioning grilles and for the continuous strip windows. The window module permits office widths in multiples of 4 ft. Also, a standard private-office depth of 15 ft was set up, based on economy of space and efficient desk arrangement. Thus, a typical small office would be 8x15, a department-head's office 12x15 and a division-head's office 15x16 ft.

Use of continuous windows insures maximum daylight regardless of partition location. General artificial lighting is fluorescent, supplied with power from a continuous bus duct. Easily and quickly installed or removed, the fixtures may be shifted at will or more may be added.

A cellular steel floor solves the problem of easily changeable wiring for telephones, business machines and desk illumination. Serving as conduit for the wiring, it can be tapped easily at short intervals.

Subdivision of floor space is quickly accomplished with movable steel partitions. Maintenance men can completely change office arrangements over a week end.

The designers claim that savings in alteration expense and employees' time through speed in making changes and lack of noise, dirt and confusion justifies the higher first cost of movable partitions. Because of economy requirements, however, masonry partitions are used instead in areas less likely to undergo changes in the future.

Even in designing the lightweight steel frame of the building, consideration was given to maintaining flexibility in use of space. There is no interference in the offices from projecting exterior-wall columns. Exterior walls—4-in. brick facing and 6-in. cinder block backup, furred and plastered—are supported on columns concealed in the window mullions.

Use of a lightweight steel frame and steel floor solved another problem as well. They enabled the 6-story structure to be built at relatively low cost on very soft soil, which could not have sustained a conventional heavyweight building.

Later on, should a great increase in floor area be necessary, it can be obtained by erection of an additional wing perpendicular to the present building at its center. In this way, the existing central vertical circulation would continue to serve all areas, and direct circulation of personnel would be unaffected.

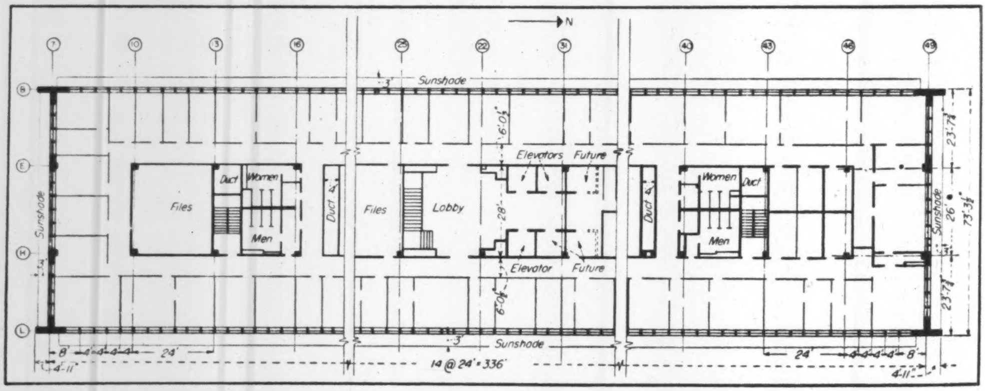
• Air conditioning—Meeting the basic requirements for flexibility in use of space depended to a great extent on the ability of the mechanical engineers to make the air-conditioning system conform to the general design. And there were many problems to be solved before this could be done:

Baton Rouge climate is hot and humid. In the summer, dry-bulb temperature may be 95 F and wet-bulb 81 F. Moreover, orientation of the building was fixed by the site in such a way that main east and west exposures get a large amount of sunshine. Also, there was a problem as to where equipment should be located. Soil conditions precluded a basement, and the structure itself had to be kept as light as possible.

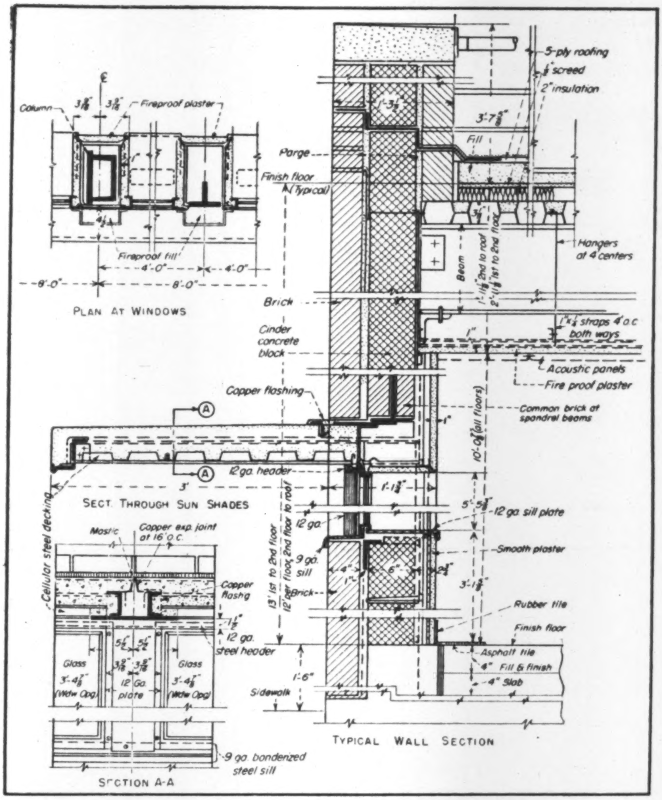
Original plans called for a 7-story building, with the air-conditioning equipment in a penthouse. But when the structure was reduced to 6 stories, a new location for the apparatus was produced by enlarging the first floor. This scheme preserved the architectural harmony of the long, low rectangular building. Air-conditioning and fan rooms were placed in one corner of the ground floor and an additional fan room was incorporated in the diagonally opposite corner.

• Same system heats and cools—Since

OFFICES extend along windows. A partition can be placed at any mullion to subdivide the space. Lights, plugged into continuous bus ducts, can be shifted easily.



TYPICAL FLOOR PLAN is based on a 4-ft module for easy subdivision. Service cores occupy interior bays, offices outer bays.



℄
Column
3 9/16"
3 9/16"
Fireproof plaster
1"
4½
Fireproof fill
4'-0"
4'-0"
8'-0"
8'-0"
PLAN AT WINDOWS
Parge
Finish floor (Typical)
Brick
Cinder concrete block
Copper flashing
A
A
12 ga. header
3'
SECT. THROUGH SUN SHADES
Cellular steel decking
Mastic
Copper exp. joint at 16' o.c.
Copper flashg
1½"
12 ga. steel header
5½"
5½"
3 9/16"
3 9/16"
Glass 3'-4⅞" (Wdw Opg)
12 Ga. plate
Glass 3'-4⅞" (Wdw Opg)
9 ga. bondenzed steel sill
SECTION A-A
5-ply roofing
½" screed
2" insulation
1'-3½"
3'-7⅝"
Fill
3½"
Beam
1'-11⅛" 2nd to roof
2'-1⅛" 1st to 2nd floor
Hangers at 4' centers
1"x¼" straps 4' o.c. both ways
1"
Acoustic panels
Fire proof plaster
Common brick at spandrel beams
1"
10'-0⅜" (all floors)
1'-1⅞"
5'-5⅜"
12 ga. sill plate
12 ga.
9 ga. sill
13' 1st to 2nd floor
12' per floor, 2nd floor to roof
Brick
4"
1"
6"
2¼"
Smooth plaster
3'-1⅞"
Rubber tile
Finish floor
Asphalt tile
4" Fill & finish
4" Slab
1'-6"
Sidewalk
TYPICAL WALL SECTION

EXTERIOR WALL is supported on spandrel beams spanning between columns hidden in window mullions. Floors are asphalt tile on fill and cellular steel decking.

little heating is required in winter, the system was designed to take care of both heating and cooling. During the summer, it is expected to maintain 80 F and 50% relative humidity under outdoor wet and dry-bulb temperatures of 81 F and 95 F. In winter it should maintain a dry-bulb temperature of 72 F and 30% relative humidity when the outdoor wet-bulb reading is 20 F.

Air conditioning was designed on the basis of 4½ watts of light per square foot of occupied area and about 100 sq ft of floor per person. Close to 20% of the total air handled will be outside air, while the remainder will be recirculated.

The air-conditioning load was lightened somewhat by several measures taken by the architect: (1) Provision of reinforced concrete sunshades, which have an overhang of three feet; this eliminated a great deal of solar heat and glare. (2) Installation of venetian blinds to eliminate early-morning and late afternoon sunshine. (3) Insulating the roof with a layer of glass fiber 2 to 3 in. thick.

• Equipment capacity—Cooling is accomplished with two 275-ton centrifugal compressors, powered by individual 300-hp constant speed motors. The compressors also furnish chilled water for cooling the cafeteria building.

Two condenser pumps and two chilled water pumps are included in the system. Each of these has sufficient capacity to serve the entire system, so there is always a spare.

In each of the fan rooms on the first floor are three fans and two or three dehumidifiers—so arranged as to handle the east, west and interior zones. Each fan room takes care of half the building below the fifth floor. The top floor is served by a separate system, which has fans and dehumidifiers located on the roof.

An induced-draft type cooling tower was installed on the roof and enclosed so as not to mar the appearance of the building. Because of the lightweight steel construction, the tower was designed to have a maximum loading of not more than 3 gpm per sq ft of cross section.

• Air distribution—Conditioned air is fed through sheet-metal ducts in furred ceilings of the corridors to short branches that extend into the rooms. Two-way directional-type outlets with a volume damper discharge the air.

To conform with the 4-ft module of other building features, these outlets were placed in pairs 8 ft apart, so that every 4-ft module would include one outlet. Ordinarily, spacing would have been wider.

Exhaust air is returned through ducts in corridor ceilings. Corridor air also is exhausted through side-wall registers, which return it through vertical shafts to the fans.

Special measures were taken to eliminate vibration and noise. These include use of flexible hose at pump suction and discharge connections and placing of vibration isolators under the cooling tower and under all machines with moving parts.

• Designers—Lathrop Douglass was architect for the building, with Carson & Lundin as associate architects. Bodman & Murrell, Baton Rouge architects, designed the cafeteria building.

Guy B. Panero was consulting mechanical engineer and Strobel & Salzman, consulting structural engineers. John W. Harris Associates, Inc., was in charge of construction. All except Bodman & Murrell have New York City headquarters.

City financing sought for off-street parking

An amendment to the Indiana state law permitting city financing of off-street parking lots and garages has been submitted by Fort Wayne for consideration by the General Assembly.

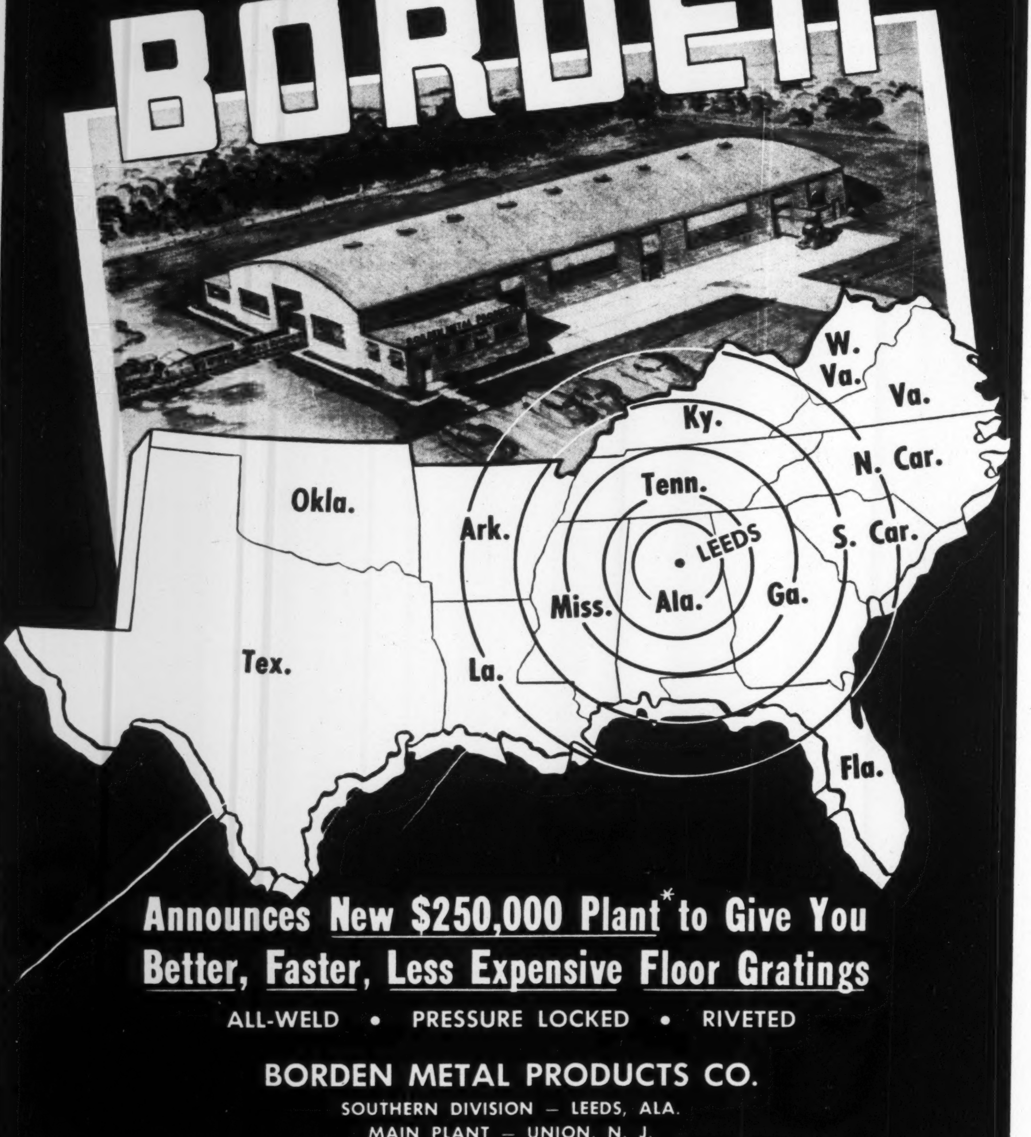
As currently legislated, city councils of Indiana have the authority to regulate fee charged for parking lots without guaranteeing that the rates will be sufficiently high to pay off bonds issued to build and maintain such facilities. This makes it difficult to sell bonds.

To overcome these objections the new amendment provides that rates charged must be sufficiently high to retire all obligations.

Fort Wayne Board of Works has under consideration three parking garages and lots in the downtown section sufficient to take care of 700 cars. The three proposed garages and lots would cost more than $1 million and be financed entirely by revenue bonds.

New Southern Division For . . .

BORDEN


W. Va.
Va.
Ky.
N. Car.
Okla.
Tenn.
Ark.
S. Car.
LEEDS
Miss.
Ala.
Ga.
Tex.
La.
Fla.

Announces New $250,000 Plant* to Give You Better, Faster, Less Expensive Floor Gratings

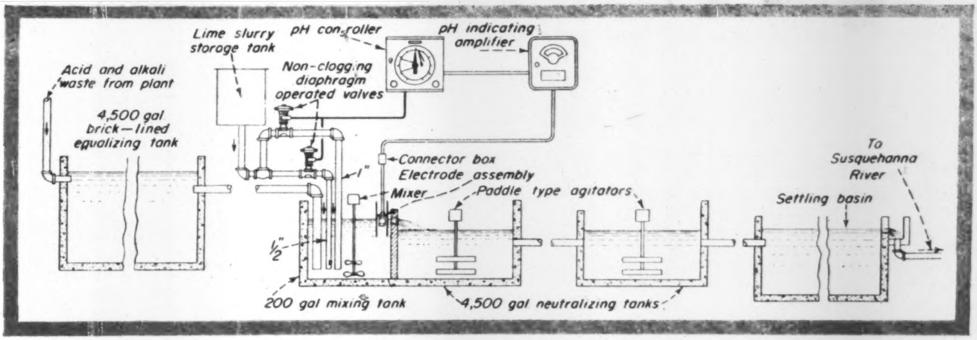
ALL-WELD • PRESSURE LOCKED • RIVETED

BORDEN METAL PRODUCTS CO.

SOUTHERN DIVISION — LEEDS, ALA.
MAIN PLANT — UNION, N. J.

SEND FOR CATALOG 815 Green Lane, Elizabeth, N. J.

* Built by Birmingham Steel Building Co., Engineers and Contractors


Lime slurry storage tank
pH controller
pH indicating amplifier
Acid and alkali waste from plant
Non-clogging diaphragm operated valves
4,500 gal brick-lined equalizing tank
Connector box
Electrode assembly
Mixer
Paddle type agitators
1"
½"
To Susquehanna River
Settling basin
200 gal mixing tank
4,500 gal neutralizing tanks

ALKALINE WASTES are neutralized by acid wastes in the equalization pit. Excess acid is made harmless by automatic addition of lime slurry. Traces of acid are wiped out in contact tanks.

Acid chemical wastes made harmless by automatic lime slurry neutralization

ELECTRONIC pH measuring-and-control equipment makes sure that acid wastes are neutralized automatically before discharge from the Sylvania Electric Products Inc. plant at Towanda, Pa. (The acid wastes are given off in the manufacture of chemical and metal products by the Tungsten and Chemical Division.)

Neutralization plus final settling gives these results: Manufacturing wastes have pH of 1 to 6. Treated effluent has 7.0 to 10.0 pH and a maximum of one-percent total solids when discharged to the Susquehanna River.

• How it's done—All liquid wastes from various chemical operations are sewered to a 4,500-gal brick-lined pit. Acid-and-alkali proof, the pit makes possible some equalization of pH because a portion of the waste is alkaline. All alkali is neutralized, leaving excess-acid waste to be treated.

The pit also serves to smooth out flow through the treatment plant. Flow from the manufacturing plant is not constant.

Overflowing from the pit, acid wastes are piped to the bottom of a 200-gal chemical-mixing tank. They enter the tank adjacent to two lime slurry feed pipes. A propeller-type mixer, driven at relatively high speed by an electric motor, effectively blends the waste and lime slurry.

Lime-neutralized wastes rise and overflow from the surface of the mixing tank. They then flow through two 4,500-gal contact tanks equipped with slow-revolving agitator paddles. Connected in series, these tanks permit complete neutralization of final traces of acid. This insures that the chemical reaction started in the mixing tank is complete before wastes are discharged.

Final treatment of the wastes is in a 4,500-gal settling basin. Here coarse sediment is settled out. Clear liquor overflows to the Susquehanna River.

The waste-treatment plant is designed for a 65-gpm flow rate. This corresponds to 31,000 gal for an 8-hr shift. The actual flow of wastes ranges from 35 to 50 gpm during a shift.

• Feeding lime—Lime slurry is fed to the wastes—in proportion to the need for neutralization—by an electronic potentiometer pneumatic con-

EXCERPTS FROM BI-MONTHLY RECORD OF DISCHARGED LIQUID

Waste-treatment plant
Sylvania, Electric Products, Inc., Towanda, Pa.
Aug. 1, 4, 5, 8, 11, 12 and 15, 1950

Date	Shift	pH	Total Solids (ppm)	Chlorides (ppm)	Total Treated Liquid (gal)	Lime Used (lb)
	1	9.7	12,500	935	16,590	350
	2	8.9	1,750	2,070	22,800	200
1	3	9.3	2,500	2,025	19,140	350
	1	8.7	7,250	2,520	23,340	350
	2	8.2	4,000	2,070	19,770	500
4	3	10.4	750	496	18,120	150
Sat	1					350
	2					150
5	3					None
	1	10.9	750	2,380	16,080	200
	2	8.7	4,000	3,135	12,720	300
8	3	9.2	1,250	1,575	12,720	100
	1	9.4	11,500	1,758	21,030	350
	2	8.2	9,750	2,010	21,690	300
11	3	9.8	1,500	440	15,240	250
Sat	1					100
	2					300
12	3					None
	1	10.1	45,500	354	16,080	200
	2	8.3	2,750	2,490	22,920	500
15	3	8.2	3,000	2,340	21,450	250

troller. The controller is actuated by a pH indicating amplifier. The amplifier is connected to an immersion-type pH electrode assembly in the outlet of the mixing tank. Electrodes are connected to a junction box by shield cables. Unshielded cables lead from the box, 100 ft to the amplifier.

Set at a pH of 7.0, the controller masterminds delivery of limed slurry through an air-motor-operated diaphragm valve on two supply lines. Lines are 0.5 and 1.0 in. in size.

Two lines and valves are needed, because a single large valve will open initially too wide and discharge an excess of lime slurry beyond that required for neutralization. This overshooting of the control point with a single large valve occurs when pH is close to neutral and flow rate is low.

Spring tension in the half-inch valve is adjusted so that it starts to open as soon as pH falls below 7.0. If pH continues to fall—requiring a controlled air pressure greater than 7 psi, the 1-in. valve comes into operation, substantially increasing the amount of lime delivered to the neutralizing tank.

As pH is brought back to 7.0 the process is reversed; lime supply is decreased to satisfy diminished demand.

As the pH is brought back up to 7.0, the process is reversed and lime supply is decreased to satisfy diminished demand.

The lime-slurry system, actuated automatically, stands guard on a 24-hr basis to make sure that no corrosive acids are discharged to the river. The plant manager reports that the system operates satisfactorily and has many advantages over manual adjustment and control of industrial wastes.

The electronic instruments are checked and standardized weekly, or oftener. This insures reliable operation.

• For the record—A bimonthly report on the operation of the waste-treatment plant is submitted to the Pennsylvania Health Department. For every 8-hr. shift of the work week, it shows the mean pH, total solids, chlorides, total volume treated and pounds of lime used.

Mean pH, and total solids and chlorides are determined by laboratory analysis of composite sample submitted at the end of each shift. The composite is made up of hourly dippings from the weir basin at the effluent end of the settling tank. Dippings are made simultaneously with flow readings.

Total volume of treated liquid is the mean flow obtained by averaging the eight hourly flow readings per shift taken at the weir. Amount of lime consumed per shift is total poundage charged to the lime-slurry tank in an 8-hr period.

• Equipment—The diaphragm motor-operated valves are Saunders patent type.

The electronic pH control devices as well as the valves are by the Brown Instrument Division of the Minneapolis-Honeywell Regulator Co., Philadelphia. This company services the instruments four times a year.

Notes on legal decisions

Summaries of decisions relating to construction work prepared by I. Vernon Werbin, counselor at law and engineer, New York, author of Legal Phases of Construction Contracts (McGraw-Hill Book Co.)

Impossibility of performance

A contractor who was contemplating submitting a bid for a job requested another contractor to supply figures for a portion of the work with the understanding that if he was awarded the general contract he would sublet that particular part of the job to the other contractor. The subject-matter of the general contract was the performance of some excavation and building work at a race track near Atlantic City, New Jersey.

The general contractor submitted the bid and was the low bidder. Before the contract was awarded to him, the party for whom the work was to be done asked him the name of the subcontractor for part of the work. When given this information, he said that the proposed subcontractor was unsatisfactory to him, as he had had difficulties with him on another job. Consequently, if the general contractor wanted to get the contract, he would have to get another subcontractor.

The general contractor made no effort to convince the owner that the proposed subcontractor was competent to perform the work, but agreed to and did subcontract the work to another subcontractor.

The contractor who originally had submitted the figures to do part of the work then brought an action against the general contractor to recover damages for breach of contract. At the trial it appeared that the difficulties that the owner claimed that he had previously encountered with the proposed subcontractor had not been encountered with him but rather with the general contractor for whom the subcontractor in question had done part of the work.

The court allowed the subcontractor a recovery, holding that the fact that the party for whom the work was being done objected to the award of the subcontract to him did not constitute a defense to the action.

(1) Schaefer v Brunswick Laundry, Inc., 116 N.J.L. 268, 183 A. 175.

Substantial performance

In an action brought by a contractor to recover the balance due under a contract, the owner interposed the defense that since the work had been defectively performed the contractor had failed to perform his contract and therefore was not entitled to any recovery. The court found as a fact that the contractor had substantially performed the contract and was allowed a recovery for the balance due under the contract, less the cost of repairing the defects in the work.[1]

The court in its opinion, in discussing the question of substantial performance, quoting from another case,[2] stated: "When the work has been done substantially in accordance with the terms of the contract, or when there has been an acceptance of the work by the owner, the contractor, notwithstanding defects therein, may recover the contract price less the cost of correcting such defects."

The court quoting from another case,[3] stated: "The rule established by decisions of this court is that, where a building contract is substantially performed, even though there are omissions and deviations therefrom, if such defects do not impair the structure as a whole and are remediable without doing material damage to other parts of the building in tearing down and reconstructing, and may without injustice be compensated by deductions from the contract price, there may be a recovery for the amount due after making such deductions."

The court, referring to still another case,[4] stated: ". . . where the defects are remediable without taking down and reconstructing any substantial part of the building, the amount of deduction from the contract price to which the owner is entitled is the expense of making the work conform to contract requirements. This is in accord with the *general* rule stated in 9 Am. Jur., BUILDING AND CONSTRUCTION CONTRACTS, Sections 43 and 152."

(1) Harris et al. v Holder et al., 230 S.W. 2d 645, Supreme Court of Arkansas, June 5, 1950.
(2) Fitzgerald v La Porte, 64 Ark. 34, 40 S.W. 261.
(3) Roseburr v McDaniel, 147 Ark. 203, 227 S.W. 397.
(4) Hollingsworth v Leachville Special School District, 157 Ark. 430, 249 S.W. 24.

MONOTUBE STEEL PILES save time, cut costs on "hard-to-get-to" job!

YOU'LL get new ideas about the savings and conveniences with Monotubes from the job pictured here.

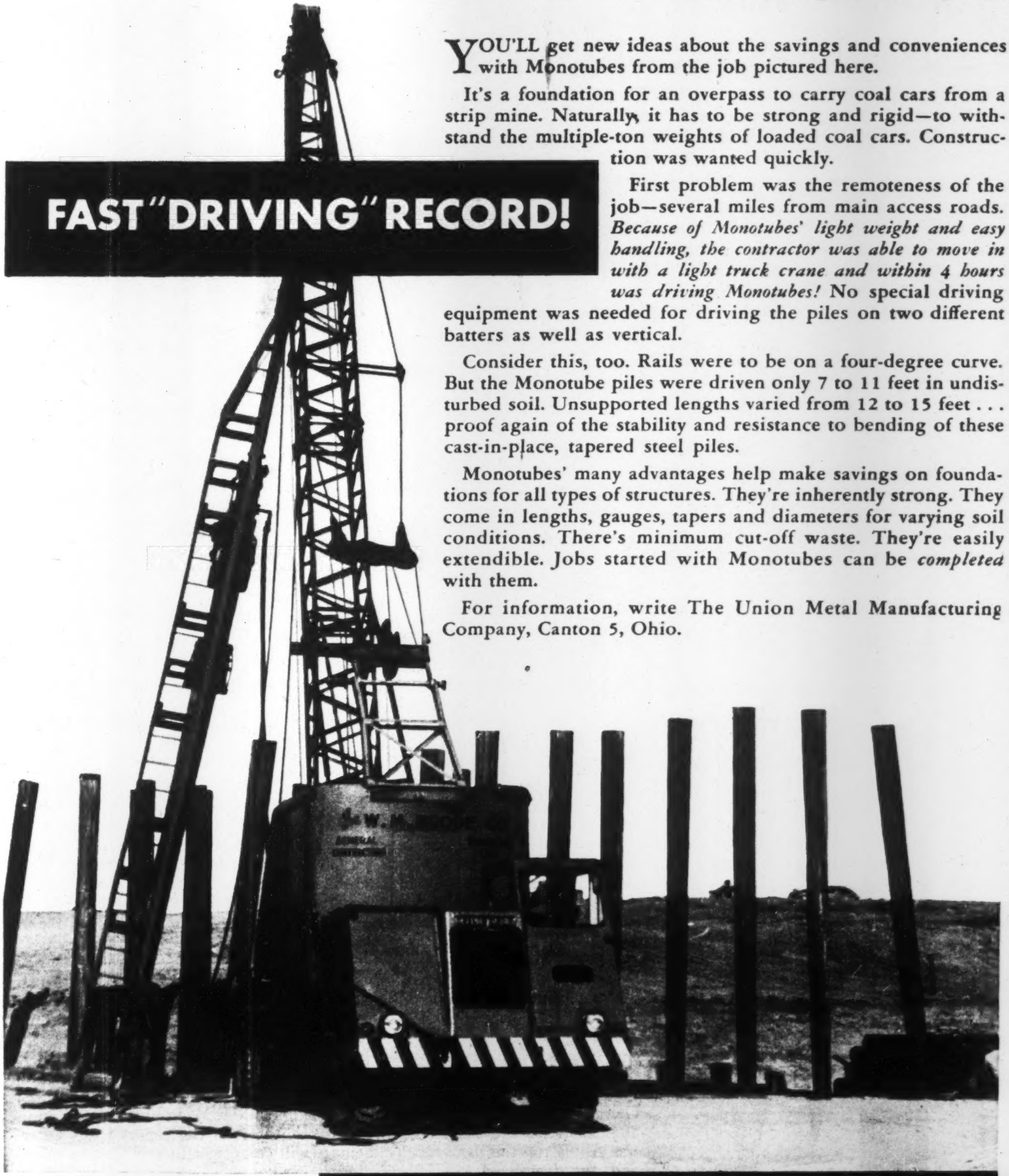
It's a foundation for an overpass to carry coal cars from a strip mine. Naturally, it has to be strong and rigid—to withstand the multiple-ton weights of loaded coal cars. Construction was wanted quickly.

First problem was the remoteness of the job—several miles from main access roads. *Because of Monotubes' light weight and easy handling, the contractor was able to move in with a light truck crane and within 4 hours was driving Monotubes!* No special driving equipment was needed for driving the piles on two different batters as well as vertical.

Consider this, too. Rails were to be on a four-degree curve. But the Monotube piles were driven only 7 to 11 feet in undisturbed soil. Unsupported lengths varied from 12 to 15 feet . . . proof again of the stability and resistance to bending of these cast-in-place, tapered steel piles.

Monotubes' many advantages help make savings on foundations for all types of structures. They're inherently strong. They come in lengths, gauges, tapers and diameters for varying soil conditions. There's minimum cut-off waste. They're easily extendible. Jobs started with Monotubes can be *completed* with them.

For information, write The Union Metal Manufacturing Company, Canton 5, Ohio.



Overpass construction at Cadiz, Ohio. Contractor: The W. M. Brode Company, Newcomerstown, Ohio.

UNION METAL

Monotube Foundation Piles

A.W.FABER CASTELL DRAWING RETOUCHING REFILL LEAD IMPORTED FROM AMERICAN ZONE * 1 DOZEN 9030 2H
A.W.FABER CASTELL LOCKTITE U.S.A. 2H
U.S.A. A.W.FABER CASTELL HB 9000
USE THE
WORLD'S BEST
at
NO EXTRA COST

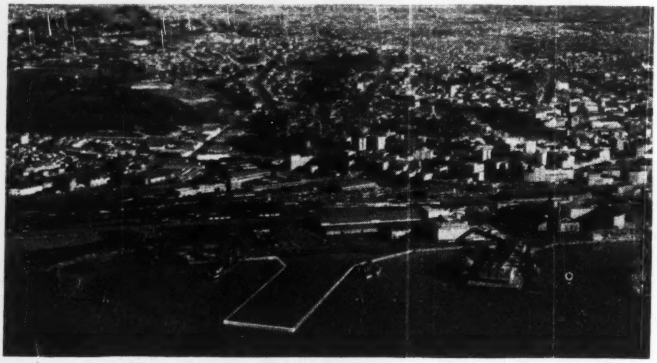
1. CASTELL DRAWING 9000
2. CASTELL LOCKTITE REFILL HOLDERS 9400—Black or Colored
3. CASTELL IMPORTED REFILL LEADS 9030

These encompass every mood of genius for drawing, drafting, tracing, sketching, blueprinting, etc.

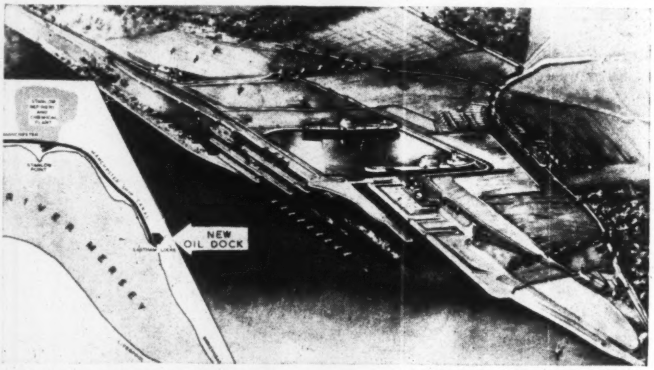
• Premium products at regular prices. See your dealer today.

AW FABER-CASTELL
PENCIL COMPANY INC NEWARK 4 NJ

DEVELOPMENTS ABROAD



OVERSEAS CARGO PIER—The Auckland Harbor Board, New Zealand, is inviting bids for construction of a pier for overseas cargo vessels. The structure will be 1,200 ft. long and 310 ft. wide and will rest on about 3,360 reinforced concrete piles in the location indicated in the picture.



BRITAIN'S LARGEST OIL DOCK—Above is an artist's impression of how Eastham Oil Dock will appear on completion. At Eastham, Cheshire, the largest oil dock in Britain is being built for the Manchester Ship Canal Co. on an area of 175 acres adjoining the junction of the Ship Canal and the estuary of the Mersey River. The dock has been planned to accommodate simultaneously up to four of the new class of super-tankers now in service and building. A 7-mile pipeline will carry the oil from the new dock to Shell's large refinery at Stanlow.

Improving the Appian Way—A start has been made on building a new speedway to replace the old Via Appia as the main highway bewteen Rome and Naples. The new speedway consists of two trunks, the Latin (Rome-Latinia) and the Domitian (from Garigliano to Naples) which will be connected by the stretch of the old Via Appia running between Terracina and the Garigliano. The advantage offered by the new speedway will consist not so much in the reduction of the distance but in the fact that by avoiding the hilly area to the south of Rome and the north of Naples the road will run on level ground with long stretches in a straight line.

German prefabs for Antipodes—Australia's state of Victoria has signed a contract with Danube Industry Limited of Deggendorf, Bavaria, providing for large-scale German participation in Australia's housing program. The German firm will begin by sending 6,000 wooden prefabricated houses to Victoria, the report said. Later it will co-operate in establishing a building company in Sydney and will send German machinery there for the construction program. Australia will admit German workers to build roads, drainage installations and water pipelines for the new settlements. New Zealand is also considering the importation of prefabricated homes.

Public Roads Bureau aids foreign roadbuilders

As a contribution to international good will and world progress, the U. S. Bureau of Public Roads has done a great deal to meet demands from abroad for information and assistance in road building.

According to Thomas H. MacDonald, chief of the bureau, that assistance consists of the following:

Supplying literature on all phases of highway development.

Receiving individuals and groups from other countries, discussing problems with them, giving courses of instruction, and arranging field studies.

Participation in international conferences. Supplying technical direction and supervision in planning, locating and constructing highways under specific federal legislative authorization and under the general guidance of the Department of State.

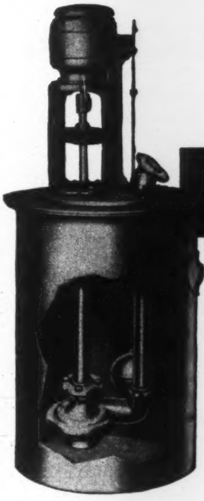
Besides work on the Inter-American Highway and the Alaska Highway the bureau has given special technical assistance in the road problems of these countries: El Salvador, Equador, Colombia, Peru, Bolivia, Turkey and the Philippines.

Brazil to build bridge over Sao Francisco River

The National Railway Department of Brazil expects to receive bids soon on the piers for a combined railway and highway bridge over the Sao Francisco River between Proprio and Colegio that will have a total length of 1,368 meters (about 4,500 ft). Bids were to have been taken late last year, but on account of the magnitude of the undertaking the date when they are to be received was put off to give prospective contractors more time.

Thirty-three concrete piers will be required to carry ten steel girders, of Wichert design, continuous over three spans, and four simple spans that are to be provided at four points where lift spans may be required at some time in the future. The continuous girders are to have spans of 36.8-50.0-36.8 meters each, and the simple girders will have spans of 33.5 meters. Girders are to be 3.5 meters center to center and will carry a reinforced concrete deck 6 m wide with a single meter-gage rail line in the center and roadways on each side. Provision also is to be made for two foot paths 1.25 m wide cantilevered out from the sides of the girders.

Total cost of the bridge is estimated at $6,150,000, of which $2,950,000 will be in foundations, $1,800,000 in steel girders, and $975,000 in the decks. The remainder is in approaches.



Every installation of a

YEOMANS DRAINAGE PUMP

builds prestige

▶ for the building

▶ for the architect-engineer

For simplicity of design, sturdiness of construction and excellence of workmanship, Yeomans Drainage Pumps are the first choice of experienced architects and engineers. As for building owners, it is significant that many Yeomans Drainage Pumps are purchased to replace inferior pumps—as a sensible means to put an end to further expense for service and repairs.

THERE ARE TWO TYPES OF PUMP

- YEOMANS BILGE PUMP—HEAVY DUTY, for handling drainage and wastes containing no solids.
- YEOMANS SCREENLESS EJECTOR, for handling wastes containing solids.

Each of these well designed, well built pumps is an acknowledged leader in its field, a fact which effectively guarantees dependability and trouble-free performance.

A full range of capacities from 10 to 5000 gpm. Heads to 75 feet.

To aid architects and engineers in selection of the proper pump for any installation, Yeomans maintains competent sales and service representatives in 50 cities. This organization makes available to you more than fifty years of Yeomans experience in analyzing pumping problems.

Sweet's Architectural and Engineering Files contain full information. Also available for your own Reference Files are helpful bulletins containing complete selection and installation data.

USE THE COUPON

BUILDERS OF DRAINAGE PUMPS FOR OVER 50 YEARS

YEOMANS

YEOMANS BROTHERS COMPANY
1445 North Dayton Street, Chicago 22, Illinois
Please send these bulletins:
No. 3005—Yeomans Heavy Duty Bilge Pump
No. 8004—Yeomans Screenless Ejector

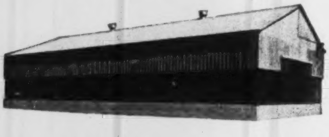
Name____________________

Firm____________________

Address____________________

City__________ Zone______ State______

PREFABRICATED
SECTIONAL-TYPE
STEEL BUILDINGS



by Mesker
OF EVANSVILLE

OUR
LEADERSHIP

in producing Prefabricated Steel Buildings is based on long experience. (Since 1879) skilled craftsmanship and modern facilities.

They may be had in any size multiples of 2" in width, length and height.

While all civilian uses of Structural Steel are severely restricted by the National Production Authorities, we will do our utmost to serve you.

"D.O." Orders especially solicited.

GEO. L. MESKER STEEL CORP.
EVANSVILLE 8, INDIANA

McKIERNAN-TERRY
RUGGEDLY-BUILT
PILE EXTRACTORS

Provide exceptional pulling power, with the sharp energy of blow needed to vibrate and loosen stubbornly set piling. These double-acting extractors come in two standard models, heavy and extra heavy. Standardized line also contains 10 double-acting hammers and 5 single-acting hammers. Write for free Bulletin.

Also builders of coal and ore bridges, bulk material unloaders, bridge operating mechanisms, hoists and marine equipment, and specially designed machinery.

McKIERNAN-TERRY
CORPORATION
Manufacturing Engineers
13 Park Row, New York 7, N. Y.

MUNICIPAL AFFAIRS

STRIKING SKYLINE shows a portion of downtown Houston. The city is a major deep water port, and an international air gateway.

Houston now the South's largest city

The 1950 U. S. census gave Houston, Tex. the undisputed title of largest city in the South. It revealed that Houston had grown from 2,396 in 1850 to 594,321 in just a century. It is significant, however, that Houston's development since 1920 was more than 455,000 in population—or four times the growth recorded in its first 70 years.

This new development came about after the opening of the Houston Ship Channel in 1916 and the mass migration of great oil refineries, other heavy industry, and, during the last decade, mushrooming chemical industries. And this heavy industrialization is still continuing rapidly.

Indicative of this expansion are the contract awards for metropolitan Houston—or Harris County. The total of these for the first eight months of 1950 were more than $77,000,000. In the same area and in the same period, $76,081,950 was expended for 12,222 residential units.

Within Houston's city limits of 155 square miles many projects are under way. These include: Sakowitz Brothers, clothing, a new $8,000,000 structure; the 21-story Melrose office building in downtown Houston and the $8,000,000 Prudential Life Insurance building.

On the San Jacinto River, to boost the city's water supply, construction on a $24,000,000 dam and reservoir will begin this year while work continues on the 50-mile Gulf Freeway (super highway from Houston to Galveston, the finished project estimated to cost $50,000,000), and the Houston Municipal Airport, the latter to be improved at a cost of some $6,000,000.

The Sheffield Steel Corp. has announced that it will increase its ingot capacity to over one million tons per year in an expansion program to be completed and in production by next summer. Army Engineers say that in the coming fiscal year they will spend $800,000 on improvements to the Houston Ship Channel, principally to widen it from 200 to 400 ft and deepen it from 32 to 36 ft.

The Ethyl Corp. reports plans for building on the Houston Ship Channel a plant to manufacture chemicals for anti-knock gasoline. Industrial circles report the cost likely will be at least $15,000,000.

Houston's new courthouse and the remodeling of the Civil Courts building will cost some $9,000,000 with contracts already awarded.

◆

Expect big expansion for Detroit area

Specifying a large "if", planners are forecasting a 50% increase in population by 1970 for the 3-county area that centers on Detroit.

A report issued by the Detroit Metropolitan Area Regional Planning Commission bases its forecast on prospects for continuing growth of industry in the region. If industry expands at expected rates, the report points out, jobs available should jump from today's 1,164,000 to 1,568,000—thus supporting a resident population increase from the current 3,000,000 to 4,500,000.

The prospectus cautions, however, that action by governmental and civic leaders can influence economic and population growth either upward or downward. Citing the significance of expanding public works programs, it adds this note of warning: "Extension of public facilities—transportation, water supply, sewers, schools, etc.—may not be fast enough to attract new economic enterprises or to encourage the expansion of existing economic activities."

MEN AND JOBS

As part of an ECA-sponsored study of American production techniques, L. A. W. van Zanten (second from right) of Zaandam, Holland, examines the cutters on a recently-developed machine for cleaning and grooving concrete pavement joints. Looking on are J. C. Robbers (left), assistant maintenance engineer of the Minnesota State Highway Department, and Lloyd Hale (right), president of the G. H. Tennant Co., Minneapolis, which manufactures the machine. Van Zanten is general manager of the Nederlandscke Basalt Maatschappy, one of Holland's largest concrete-fabricating and industrial contracting organizations. He is a member of a 14-man team visiting this country to study production methods used in America's precast concrete industry. In the Netherlands concrete is used extensively as a substitute for wood and steel.

John I. Thomas, for many years with the Corps of Engineers, has been appointed chief of the Atomic Energy Commission's division of engineering and construction at the Hanford Works, Richland, Wash. His most recent position has been as project engineer for Pine Flat Dam in California.

Ernest C. Bechly, a member of the Lewis County engineering staff at Chehalis, Wash., since 1903, has retired. He was county surveyor from 1907 to 1910. During that period, title of the office was changed to county engineer, so he became the first Lewis county engineer as he had been the last surveyor.

Edwin G. Nielsen, Bureau of Reclamation's regional planning engineer at Boulder City, Nev., has been promoted to assistant regional director. He succeeds **L. R. Douglas** who previously was named director of power at the Boulder Canyon project.

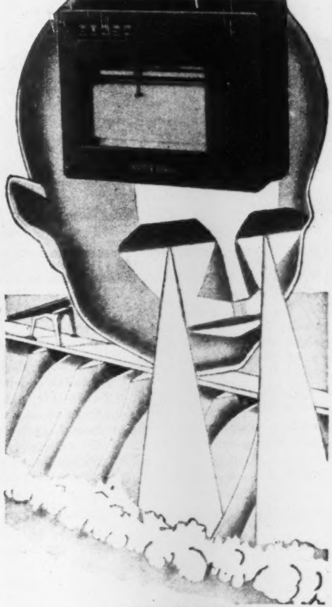
John M. Bresnahan, civil engineer, and acting director of the Port of Boston Authority for 14 months, has been elected director. He started in 1946 as an associate civil engineer. He was promoted to special assistant to the director in November, 1946, and was named administrative assistant in 1949. He became acting director in 1949.

G. W. Cassidy, Fredericton, N. B., has been named deputy public works minister of New Brunswick, succeeding **A. W. Barbour**, who has been named executive assistant.

Floyd Groce, city street and water superintendent at Yadkinville, N. C., and formerly with the North Carolina Highway Department, has resigned to go with Davis, Inc., at Winston-Salem, N. C.

Lester B. Dunlap, of Gridley, Calif., will replace **Dean P. Larson** as engineer for the Oroville-Wyandotte Irrigation District, since Larson has been given a year's leave of absence for military duty. Dunlap has been with Sutter-Butte Canal Co. in the Gridley area.

Maj. Leonard A. Wagner, C.E., was recently assigned to the Engineer Division Headquarters European Com-



WATER
MEASUREMENT
OR CONTROL

STEVENS

GRAPHIC, VISUAL OR AUDIBLE REGISTRATION

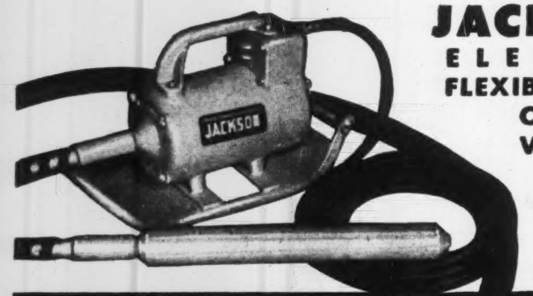
Whether you need a simple staff gage, float gage or complex remote operated recorder, there is a STEVENS instrument to meet your requirements. Water level or flow recorders for weekly service or long periods of unattended operation, direct float operated or remotely controlled; indicators, controls for alarms and pumps . . . the STEVENS line is complete in the field of water measurement and control. We also welcome inquiries concerning special problems.

Pioneers in the field of water level recording for more than 43 years, LEUPOLD AND STEVENS INSTRUMENTS, INC., have developed and perfected precision water measuring instruments of all types to meet a variety of specific needs, especially for water works, sewerage, irrigation and industrial uses.

Write for literature and information on accurate and dependable STEVENS water measuring instruments.

L&S INSTRUMENTS

LEUPOLD AND STEVENS INSTRUMENTS, INC.
PORTLAND 13, ORE., U. S. A.



JACKSON
ELECTRIC
FLEXIBLE-SHAFT
CONCRETE
VIBRATOR

MODEL
FS-
150A

WITH EVERYTHING THE GENERAL CONTRACTOR COULD WANT

POWER GALORE:
2½ HP (continuous duty rating) Universal Motor provides more than ample power for uninterrupted placing of the stiffest mixes using the maximum length of shaft.

LIGHT SOCKET OPERATION:
Wherever either 115 volt, 60 cycle single phase AC or Direct Current is available, this relatively inexpensive vibrator will do a bang-up job of concrete placement.

28 FOOT REACH:
Available with any length of shaft up to 28 feet. Maximum length makes hard-to-get-to places readily accessible — saves time by making frequent changes of vibrator location.

CONVENIENT — RUGGED CONSTRUCTION:
Double grip, skid-base handle with finger-tip control switch. Weighs only 50 lbs. Finest, smooth-running flexible shaft and fittings — built to take the most severe usage.

GRINDING:
Countershaft attachment for quick conversion to wet or dry concrete rubbing.

HIGH FREQUENCY — 3 VIBRATOR HEADS:
8,000 to 10,000 VPM and availability of three vibrator heads assure rapid as well as thorough consolidation of the stiffest mix concrete under all conditions.

See this outstanding general-purpose electric vibrator at your Jackson Distributor or write for complete facts.

ELECTRIC
TAMPER
&
EQUIPMENT
CO.

LUDINGTON, MICHIGAN

MC Self-Raising
Tower-Hoist

THE INDUSTRY'S MOST VERSATILE

- **Picks itself up**
- **Easily extends**
- **Lifting heights up to 94 feet**
- **Single or Double Drum Hoists**
- **Platform speed—100 ft. per min.**
- **Lifting capacity—2,500 lbs.**

***Optional Equipment:* Gin Pole Assembly, "Chicago" Boom, Tip-Over Bucket, Truck Mounting, Interchangeable 10' Extensions.**

CONSTRUCTION MACHINERY COMPANIES
WATERLOO, IOWA

mand. He served in the European and Pacific Theaters during World War II as a battalion commander of the 1308th Engineer Regiment and the 6th Engineer Combat Battalion. Prior to his European assignment he had been post engineer at Cameron Station, Alexandria, Va.

Larry O. Cox, engineer, has been elected head of Texas' eleemosynary hospital system. Cox has been business manager of the Austin State School, part of the system he will administer. Holder of an engineering degree from Colorado School of Mines, Cox worked for the U. S. Reclamation Bureau in 1921; design engineer, Texas Highway Department, 1921-1929; vice-president, sales manager and general manager, Longhorn Portland Cement Co., San Antonio, 1929-1936; vice-president, H. B. Zachry Co., San Antonio, 1936-1942; engineer of design, construction and maintenance on air force bases, 1942-1947. Cox will help supervise a building program scheduled to cost $35,000,000 in the next seven years.

Carl A. Gould, Denver, Colo., is retiring as assistant regional forester in charge of the division of engineering. He entered the forest service in 1931 after 20 years of private civil engineering practice. He is an engineering graduate of Cornell and worked for 8 years as a construction engineer with the Northern Pacific R. R. before starting a private engineering practice in Denver. He will now become a consulting engineer again in that city. The new head of engineering for the Rocky Mountain region will be **Henry M. Shank**, with the service for 30 years.

Robert Duncan, of the Milwaukee County Regional Planning department, and a civil engineer graduate of Marquette University, has been appointed city engineer of Port Washington, Wis.

Frank J. Radigan has resigned as engineer of Hudson County, N. J., to practice as a consulting engineer in Jersey City. His successor is **Harry J. Thourot**.

Frank Kerekis, assistant dean of engineering and professor of civil engineering at Iowa State College, has been appointed chairman of the Standard Building Code Committee of the American Concrete Institute.

W. M. Scott has resigned as commissioner of the Greater Winnipeg, Man., water and sanitary districts. A graduate of McGill University, Montreal, he worked on a number of municipal engineering projects in the U. S. and Canada before going to Winnipeg in 1906.

EDUCATION and RESEARCH

College students may expect some draft deferment

On Jan. 10 a statement concerning prospective military manpower requirements was issued by Mrs. Anna Rosenberg, Assistant Secretary of Defense in charge of manpower and personnel problems. It contains official information which is of special interest to college students especially those about to enter engineering courses as clarifying their status in the present emergency.

The highlights of her statement are as follows:

There will be ample opportunity to enroll for college in 1951, and, once enrolled, the student will be automatically deferred till the end of the school year. Those in ROTC, of course, will have the best chance for longer deferment.

By thus permitting a larger number of deferments than would otherwise be possible in the regular Selective Service pool of men between 19 and 26, this program would help give industry and agriculture continued access to engineers, technicians and skilled laborers. It would also help maintain a stable education system by preventing the emptying of colleges at this time by the wholesale drafting of their student bodies.

Every physically fit 18-year-old will be liable for a maximum of 27 months of service and training in the armed forces.

In the first three years of the Universal Military Service Training program the President would have authority to suspend temporarily the active service requirements of up to 75,000 students so they could complete their college training. These students would have to undergo an initial 4-month period of military training on exactly the same basis as all other eligibles, and the obligation to complete that service would have to be fulfilled after graduation.

Methods for selecting students to be deferred and for deciding courses of study important to national interest would be left entirely in civilian hands under procedures to be drawn up by the President.

Consideration would be given to a selection process that would not rely solely on educational attainment but also on general qualities of intellect and leadership.

The possibility of national scholarships to aid outstanding young men who otherwise would be barred from continuing their education is to be explored by civilian experts on education and science.

Carrying forward the same basic philosophy of educational opportunity, longer periods of deferment will be allowed for trainees who want to work their way through college.

College training courses for military personnel on active duty in specialties of direct value to the military, may involve as many as 50,000 men a year. Although unrelated to the U. M. S. T. program, these military scholarships will help colleges in the next four years.

ABOUT ROTC

Universal military service likely to go into effect next July 1 will then begin to control all youths who pass their 18th birthday on or after that date.

Many colleges are starting freshman classes in February, others next June. If qualified, a student may be accepted for the Reserve Officers Training Corps, and thus have a good chance of deferment until his education is completed.

But this is really a postponement rather than a deferment because eventually such a student must agree to accept an officer's commission in the armed forces. The Army expects to add 36 ROTC units by next fall, giving it programs in 235 universities and colleges.

Increased reliance on 18-year-olds will cause reduced draft calls for upper classmen now in college, thus helping to keep small colleges open until the first group under U. M. S. T. completes military service and goes back to school.

The President would not be required to induct men for completion of active service immediately after graduation from college. Further deferment could be granted in the national interest where it was thought the man could make a more substantial contribution outside.

To broaden engineering education at Case Institute

Carrying out its program of broadening the education of the engineer, Case Institute of Technology at Cleveland, Ohio, will bring five visiting experts in humanistic-social studies to its campus during the current academic year. The visiting scholars will assist

NOW . . . fully revised and enlarged to give you . . .

THE LATEST AND BEST IN CIVIL ENGINEERING PRACTICE AND PROCEDURE

Here, to meet the needs of practicing engineers who must solve specific problems — particularly those outside their specialized fields—is a modern treatment of the *fundamentals, theory*, and *practice* of the various subdivisions of civil engineering. With the aid of the up-to-date, detailed data and practice given in this completely revised 3rd Edition, you can check your present methods and procedures . . . enhance your ability to handle all kinds of jobs *more quickly and efficiently*. Each of the book's 10 big sections has been completely rewritten to bring you right up to the minute on advances and developments in the widely diverse fields of civil engineering.

New 3rd Edition

CIVIL ENGINEERING HANDBOOK

Editor-in-Chief,
LEONARD C. URQUHART

Consulting Engineer, New York, N. Y., and Newark, N. J., Former Colonel, Corps of Engineers, and Professor of Structural Engineering, Cornell University. **976 pages, 6 x 9, over 900 illustrations, tables, and diagrams, semi-flexible cover, $8.50.**

IF you *plan, select, design*, or *build* civil engineering structures, you'll find this tailor-made handbook a guide that is more useful than ever in helping you to save time and trouble in procuring vital information . . . in avoiding costly errors . . . in putting today's approved procedures right at your fingertips. From city surveying and stresses in beams, through bridge trusses and welding and riveting, to pile foundations and intakes and dams—everything you want and need to develop economical, efficient practices is discussed.

10 BIG SECTIONS

1. Surveying
2. Railway, Highway and Airport Engineering
3. Mechanics of Materials
4. Hydraulics
5. Stresses in Framed Structures
6. Steel Design
7. Cement and Concrete
8. Foundations
9. Sewerage and Sewage Disposal
10. Water Supply and Purification

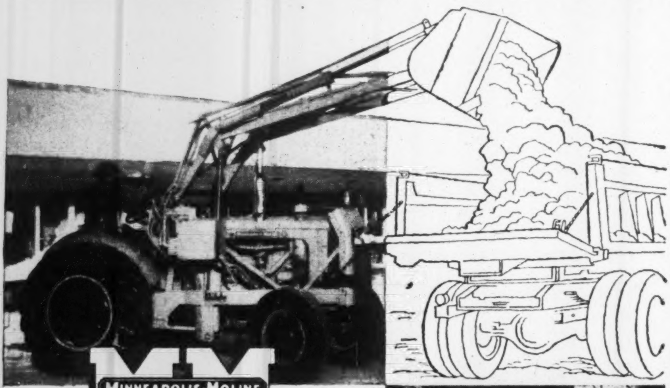
SEE THIS BOOK 10 DAYS FREE

McGraw-Hill Book Co., Inc.,
330 W. 42nd St., New York 18

Send me Urquhart's CIVIL ENGINEERING HANDBOOK for 10 days' examination on approval. If the book proves satisfactory, I will remit $2.50 in 10 days, and $3.00 monthly until $8.50 is paid. Otherwise I will return the book postpaid.

Name ....
Address ....
City ....Zone.....State..........
Company ....
Position NR-1-25-51

This offer applies to U. S. only.



FORECAST:

COLDER with SNOW

MINNEAPOLIS-MOLINE
MODERN MACHINERY

INDUSTRIAL WHEELERS

Model UTIL, 6 forward and 6 reverse speeds, quickly and easily loads snow with a 3 cu. yd. snow bucket.

Model RTI with all-weather cab and V-type plow clears snow blocked roads and streets.

Model RTI with hydraulic drive sweeper cleans up loose snow, right to the pavement.

MM Industrial Wheelers are *just right* for tough snow removal jobs. No matter what *your* snow problem, there's an MM Wheeler and the "right" attachments to do the job—and to keep operators busy all year.

Front end loaders with up to 3 cu. yd. snow buckets keep a fleet of trucks loaded and on the move. They increase the capacity of all equipment. *Rotary broom sweepers* eliminate ice hazards by complete removal of up to 24 inches of fresh snow from walks and drives.

V-type or reversible angle plows on high-speed MM Wheelers open drift-blocked roads with no time lost between jobs.

High-capacity snow removal attachments and enclosed comfort cabs make MM Industrial Wheelers ideal for fighting snow in *all* weather conditions. See your nearest MM representative for complete information on these "easiest steering" wheelers in 27 and 51 h.p. sizes. Ask about the 6 speed "Shuttle Gear" and instant shifting.

MM Quality Control means Dependable Performance on the Job.

MINNEAPOLIS-MOLINE
MODERN MACHINERY

MINNEAPOLIS-MOLINE
MINNEAPOLIS 1, MINNESOTA

in the development of Case's new required two-year course in "The Background of Western Civilization." They will also lecture to the students and meet with faculty groups to discuss the role of general education in a college of technology.

The experts, each of whom will be at Case for a week, include Gilbert A. Highet, Anthon professor of Latin, Columbia University; Crane Brinton, professor of history and chairman of the Society of Fellows, Harvard University; Howard Mumford Jones, professor of English, Harvard University; President Charles W. Cole, Amherst College; and President Stringfellow Barr of the Foundation for World Government.

The visits are financed by a grant from the Cleveland Foundation for the development of the western civilization course which Robert L. Shurter, head of Case's Division of Humanistic-Social Studies, characterizes as a description of "the pilgrimage of Western man" and a record of "his mistakes, his gropings, and his successes on his long road to the twentieth century."

Faculty News

Linton E. Grinter, research professor of civil engineering and mechanics at Illinois Institute of Technology, has been named to the executive committee of the engineering mechanics division of the A.S.C.E.

At the graduate school of public health, University of Pittsburgh, Dr. Harwood S. Belding has been appointed professor of environmental physiology, and Maurice A. Shapiro assistant professor of sanitary engineering. Dr. Belding's major field of research has been in man's physiological reactions to his environment. Mr. Shapiro has been engineering research associate for the American Public Health Association.

Joseph J. Moder, Jr., has been made faculty research associate at the Georgia Tech. engineering experiment station. John C. Lane has been appointed head of the technical information service of the station and a research professor of the institute.

C. D. Williams has resigned as head professor of civil engineering at the University of Florida, but will remain on the faculty, at least temporarily, to carry on research and development. Currently, he is a special consultant for Reynolds, Smith and Hills on the $16,000,000 Jacksonville bridge program. He is president of the Florida section of the American Society of Civil Engineers.

MEETINGS

Indiana Society of Professional Engineers has named these officers for 1951: L. Eugene Easley, Indianapolis, president, succeeding Richard J. Erb, Fort Wayne; E. G. Hinshaw, Indianapolis, first vice-president; Prof. Harry L. Solberg, Purdue University, Lafayette, second vice-president; Morris K. Fish, Indianapolis, renamed secretary; Don S. McGuire, re-elected treasurer; and J. B. Wilson, Indianapolis, renamed executive secretary. Col. Chester Lichtenberg, Fort Wayne, was renamed national director. Named directors-at-large were Joseph Wysong, East Chicago, and Kenneth W. Cooper, Fort Wayne.

Edward F. Higgins has been elected chairman of the construction industries section of the Delaware Chamber of Commerce. Charles H. Megginson was elected vice-chairman.

Ray E. Behrens, civil engineer and county planning engineer, has been elected president of the Milwaukee chapter of the Wisconsin Society of Professional Engineers. Harry Gute of the Gute Co., was elected vice-president; Paul Brezenski of Globe Steel Tubes, Inc., Secy.-Treas.; and Albert Olson of Chain Belt Co., elected a director.

Thirteen members of the board of directors for 1951 were elected at the annual meeting of the Albany Home Builders Association in Albany, N. Y. Elected were Daniel Santandrea, George Abele, William Pagano, Frederic Sheldon, Morris Eisenberg, James Rooney, Charles Buchman, Clifford Picotte, Sidney Friedman, John Cunningham, Frank Mulligan, Leo Byrnes and Robert May.

Dale E. Fisher has been re-elected president of the Home Builders Association of Fort Wayne, Ind. Others elected: Ralph L. Shirmeyer, national director; Otto Nord, vice-president; and Herbert C. Beberstein, re-elected secretary.

The Arkansas Society of Professional Engineers has notified Governor Sidney S. McMath, that its members are making their services available in the event of any war disaster in Arkansas. Frank Beckman of Fort Smith, Ark., consulting engineer for Fort Smith, was elected president, succeeding Fred J. Herring of the Arkansas Highway Department. Other officers are: Fred McDonald, chief engineer of the Arkansas Board of Health, vice-president; George F. Brannigan, dean of the School of Engineering, University of Arkansas, Fayetteville, vice-president; Charles Hooker of the Arkansas Highway Department, secretary-treasurer. New members of the board of directors are Russell Jordan of Pine Bluff, Luther Bearden of Batesville and Beverly Ryan of Little Rock. The organization endorsed a resolution of the Arkansas County Surveyors Association, seeking licensing of land surveyors in Arkansas. John E. Buxton, a member of both organizations, pointed out "flagrant abuses" of professional standards of surveying by non-professional.

Robert B. Capron was elected president of the Jefferson-Lewis Chapter of the New York State Society of Professional Engineers at the annual meeting of the chapter in Watertown, N. Y. Mr. Capron, is distribution engineer for the northern division of Niagara-Mohawk Power Corp. Nelson M. Degon of Watertown Electrics, Inc., was named vice-president. Harold M. Besha of the New York State Department of Public Works was re-elected secretary, and Harold R. Dwyer, assistant city engineer, was re-elected treasurer.

Officers of the Alabama section of the ASCE are J. B. Converse, president; C. B. Willoughby, 1st vice-president; Sam W. Harbin, 2d vice-president; and Harry Myers, secretary-treasurer.

CALENDAR

Association of Asphalt Paving Technologists, Cosmopolitan Hotel, Denver, Colo., Feb. 5-7.

N. J. Section, AWWA, luncheon meeting, Hotel Essex House, Newark, N. J., Feb. 14.

Midwinter Housing Conference, S. W. Research Institute's division of Housing and Construction Technology, Statler Hotel, Washington, D. C., Feb. 13-14.

Illinois Annual Conference on Highway Engineering, Urbana, Ill., Feb. 20-22.

American Concrete Institute, St. Francis Hotel, San Francisco, Calif., Feb. 20-24.

Industrial Waste Conference, Purdue University, La Fayette, Ind., Feb. 21-23.

American Society of Civil Engineers, convention, Rice Hotel, Houston, Texas, Feb. 21-23.

Associated General Contractors of America, annual convention, Hotel Statler, Boston, Mass., Feb. 26-March 1.

Midwest conference, Building Officials and Inspectors, Purdue University, La Fayette, Ind., Feb. 26-28.

American Concrete Pipe Association, Waldorf-Astoria Hotel, New York City, Maroh 1-3.

American Road Builders Association, Schroeder Hotel, Milwaukee, Wis., March 12-14.

American Railway Engineering Association, Chicago, Ill., March 13-15.

N. J. Sewage and Industrial Wastes Association, Haddon Hall Hotel, Atlantic City, N. J., March 14-16.

Structural Engineering Conference, University of Florida, Gainesville, Fla., March 16-17.

N. Y., State Association of Highway Engineers, Rochester, N. Y., March 28-30.

N. J., Society of Professional Engineers, Haddon Hall, Atlantic City, N. J., Apr. 6-7.

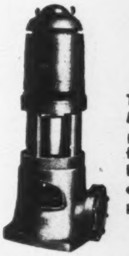
PUMP
NOTES
by
DEMING

TURBINE PUMPS

These efficient, multi-stage, vertical turbine pumps are designed for wells from 4" to 16" or larger in diameter, and of practically any depth. Capacities from 15 to over 3000 G.P.M.

The standard *Unit Drive Head* is designed for installations where electric power is available. Eight sizes of pump heads with motors from 1 to 250 H.P.

The *Flexible Coupling Drive Head* is designed for use with vertical steam turbine or vertical solid shaft motor.



The *Combination Motor-Belt Drive Head* is designed to provide an economical means for operating the pump with belt drive from tractor or engine in case of electric power stoppage.

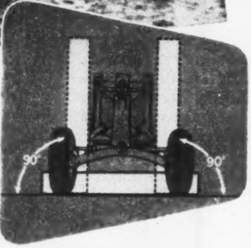
The *Combination Motor-Right Angle Drive* is designed for direct connection through flexible shaft to auxiliary source of power. Motor may be removed and pump operated through drive only.

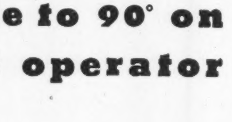
* * *

A 24-page, illustrated Bulletin (No. 4700) contains detailed information about Deming Pumps. Write for a copy.

THE DEMING COMPANY
536 BROADWAY • SALEM, OHIO

SPECIFY DEMING PUMPS





Swing THAT BLADE... *Speed* THAT CUT

WARCO...®
the only tandem grader with blade travel from 90° on one side to 90° on the other without operator leaving cab!

Here's speed, low cost, economy . . . make one pass . . . turn your WARCO around and set the blade on the other side . . . then make a *working* pass on the return trip! No "dead-heading," no backing-up, no delay for manual adjustment of lift-links. Your WARCO's completely cab-controlled blade turns out more work in less time.

AT NO EXTRA COST you get these other WARCO working features:

• TIME-SAVER blade revolves 360° without removing scarifier or teeth • EASY mechanical steering with hydraulic booster saves effort, yet never leaves you stranded • STANDARDIZED same big-size tires all around, all wheels interchangeable • HIGH CLEARANCE of front axle straddles bigger windrows, handles more material

WARCO 100 H.P. Heavy Duty Motor Grader Model No. 4D-100

WARCO 76 H.P. General Duty Motor Grader Model No. 4D-76

COLOR SLIDE SHOWING FOR YOU . . .
Your WARCO dealer has a fact-packed series of slides showing details of the WARCO design . . . construction . . . operation. Ask him to give you a showing soon.

®**WARCO**
MOTOR GRADERS

W. A. RIDDELL CORP.
BUCYRUS OHIO
• builders of WARCO Motor Graders — HERCULES Road Rollers

OBITUARY

Herman Schorer, 58, president of Borsari Tank Co. of America, New York City, died at Valhalla, N. Y., Dec. 20. He was an hydraulic engineering graduate of the Federal Polytechnic Institute of Zurich, Switzerland. He designed and patented a method of prestressing concrete in which a special unit is placed in a beam. This unit consists of tensioned wires and a steel pipe to take the thrust. When the wires are detached the concrete is compressed, and then the pipe is removed. Among Mr. Schorer's published papers was "Prestressed Concrete Design Principles and Reinforcing Units," Journal of the American Concrete Institute, 1943.

Walter K. Hopkins, 53, first city manager of Hanford, Calif., died there Dec. 30. A graduate of the Colorado School of Mines, in his earlier years he worked for Koebig & Koebig, municipal consulting engineers, the Metropolitan Water District of Southern California, and also the Los Angeles County Surveyor. In Brawley, Calif., he served as city engineer for nine years. In 1945 he went to Hanford to fill the newly-created post of city engineer. He was appointed city manager last October.

Charles Alfred Davis, 68, sanitation engineer of Denver, Colo., died there Jan. 8, after 46 years of service to the city. He took his engineering degree at Colorado School of Mines. He first went to work for Denver in 1904, and in 1913 he became sanitation engineer. Since then he has had constant supervision of the city's $20,000,000 sewerage operation. He also helped other Colorado cities with their sewage problems and has held high office with national and regional organizations of sanitation engineers.

Charles T. Watson, 72, retired civil engineer, died in Washington, D. C., Dec. 31. He was a 1904 civil engineering graduate of the University of Wisconsin. He helped build railroads in Wisconsin, Michigan and Minnesota. He was a captain in the Army Engineers in World War I. In 1920 he went to Washington to enter the U. S. Railroad Administration as an engineer. He was in private practice for a time and retired in 1942.

Franklin B. Keiser, 60, president of the Keiser-Geismer Engineering Co., Birmingham, Ala., died Jan. 6. He was a graduate of the Georgia Institute of Technology.

UNIT PRICES BID BY CONTRACTORS

Bald Mountain Tunnel Colo-Big Thompson Project

Three of the eight bids on the Bald Mountain Pressure Tunnel and access roads, Colorado-Big Thompson Project, Colo., were below the engineer's estimated $1,876,296, Nov. 16, 1950, when the Bureau of Reclamation took bids. The low bid at $1,691,262 was 10.9% below the estimate, 3.1% below the second low bid and 41.3% below the high.

The work is part of the Estes Park-Foothills power aqueduct, about 10 miles west of Loveland, Colo. It is located just across Rattlesnake Reservoir from Rattlesnake Tunnel (ENR Sept. 28, p. 68).

The work includes construction of 1.3 miles of reinforced concrete-lined tunnel; trashrack; transition; cut and cover section at the inlet portal; surge tank roof; of Linger and East Portal access roads; installation of structural steel, vent screens, vent pipe, surge tank ladder, valve and piping for tunnel sump drain; and construction and installation of corrugated-metal pipe culverts, cattle guards, gates, cable guard fence for the access roads. Trashracks and stop-log slot cover, safety cage ladder with anchor bolts, hatch cover and metal screens with frames and anchorages will be supplied by the government.

Completion is scheduled for 650 days with a penalty of $200 per day for each day's delay.

Minimum wage rates are: carpenters and cement finishers, $2.00 an hour; ironworkers, $2.10; pipelayers, $1.85; power equipment operators, $1.45-$2.15; tunnel laborers, $1.35.

Bidders included:

1 Winston Bros. Co., Monrovia, Calif. (contract)	$1,691,262
2 Peter Kiewit Sons' Co., Omaha	1,743,988
8 Lowdermilk Bros., Denver	2,389,552
Engineer's estimate	1,876,296

Items	Quantity	Unit prices 1 C	2
Excav, all classes			
In open cut ... cy	80,000	$1.25	$1.50
In tunnel ... cy	33,400	19.00	20.00
Tunl enlarg ... cy	100	25.00	30.00
Surge tank & 60' tunl sect ... cy	6,800	13.00	21.00
Perm st tunl sup. f & i lb	685,000	.18	.13
Perm timber in tunl, f & e ... Mbm	245	200.00	190.00
8" sewer pipe with cmt joints, f & l ... lf	150	1.00	5.00
Drill feelr or pilot holes ahead of tunl excav .. lf	600	1.00	2.25
Drill grout holes thru conc ling ... lf	600	1.00	1.50
Grout pipe, con. f & p lb	600	1.00	.50
Pressure grout ... cf	6,500	2.00	2.00
Excav, all cl			
rdway ... cy	14,400	1.25	1.70
rd struct ... cy	100	5.00	6.00
Selec rdway borrow ... cy	800	1.00	1.00
Selec rdway surf ... cy	1,125	1.60	4.00
Overhaul ... stacy	12,500	.03	.03
Backfill ... cy	1,235	1.00	1.00
Compact bkfill ... cy	235	4.00	4.00
Riprap 24" thick ... cy	540	3.00	6.50
Concrete in:			
Structures ... cy	500	60.00	40.00
Tunl lin'g ... cy	9,900	27.00	27.00
Lin'g of surge tank & 60' tunl sec ... cy	960	45.00	44.00
Cement, f & handl ... bbl	17,000	5.00	5.00
Reinf bars, f & p ... lb	1,458,000	.14	.12
Corug metal pipe			
24" f & lay ... lf	42	5.00	7.50
30" f & lay ... lf	78	6.50	8.50
36" f & lay ... lf	138	10.00	12.00
Arch, 50"x31"f&l ... lf	120	15.00	14.00
Fence gate, f & i			
Barbed-wire ... ea	1	25.00	16.00
Dbl st frame ... ea	1	150.00	65.00
Catl guard, E Portal access rd, f & c ... ea	2	1,500	4,560
Cbl guardrail, f & c ... lf	1,100	4.00	4.00
Guard posts, f & e ... ea	64	10.00	7.50
Catl guard for Linger access rd, f & c ... ea	1	1,500	1,104
Misc metalwk, i ... lb	41,000	.10	.18
Misc mtlwk, f & i ... lb	4,500	.50	.28
Struc st, f & e ... lb	18,300	.20	.23

Bio-filtration plant in San Marcos, Texas

A bid of $156,640 was low of 10 bids received by the City of San Marcos, Tex., Dec. 19, 1950, on a 1 MGD two-stage bio-filtration plant. It was 7% below the second low and 44.8% below the high bid. Frank T. Drought, San Antonio, is consulting engineer.

The new sewage treatment plant is designed for a 1975 population of 12,500 and replaces the present activated sludge plant, one of the first to be installed in this country. The recirculation is variable, keeping a constant flow of 1.3 MGD. The primary and secondary clarifiers are 50 feet in diameter and 9 feet in side wall depth. The trickling filters are 62 feet in diameter with a 5-foot depth. The sludge digestor, 48 feet in diameter and 18 feet 2 inches in side wall depth, is of prestressed concrete, dome-covered construction. It is to be erected under sub-contract by the Preload Corp. of New York.

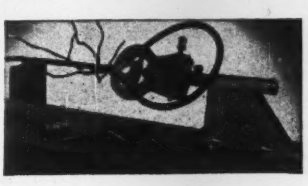
All labor and materials must be furnished by the contractor. The contract includes an escalation clause applying only to mechanical equipment. All work must be completed in 120 days. Work rates are: laborers $.97 an hour, carpenters $2.00, heavy equipment operators $1.75-$2.00.

Bidders on the job included:

1 Paddock Engineering Co. of Texas, Dallas (Contract)	$156,640.25
2 Gerald Mora, Houston	167,488.50
10 Wyche & Hammond	266,824.60

Items	Quantity	Unit prices 1 C	2
Cont & pump house .. ls	.....	$26,000	$34,016
Grit channel ... ls	.....	6,200	7,541
Primary clarifier ... ls	.....	18,450	17,924
Secondary clarifier ... ls	.....	17,750	17,924
Trickling filt, prim ... ls	.....	15,000	20,503
Secondary ... ls	.....	15,700	20,503
Sludge digester ... ls	.....	35,300	33,962
Sludge drying beds ... ls	.....	7,400	9,678
Gate valves (with valve box & conc wk) 6" .. ea	1	75.00	75.00
10" ... ea	3	164.00	150.00
12" ... ea	2	211.00	190.00
Cast iron pipe, 6" ... lf	460	4.25	3.25
10" ... lf	465	6.30	5.00
12" ... lf	65	7.20	7.00
Vit clay pipe, 6" ... lf	110	1.80	1.75
10" ... lf	25	2.75	4.00
Elec wiring & fixt ... ls	.....	3,350	4,000
Walkways ... sy	6	4.50	2.50
Access rd & park area			
Excav & embank ... cy	50	1.50	1.00
Scarif & compact ... sy	1,800	.50	.25
Prime & tack coat .. sy	1,800	.60	.25
Grad & plant ... ls	.....	2,800	3,000

WIRE ROPE SPLICER



Time-Tested in Naval and Aircraft Use.

Swivel Acting Jaws — Torque Control mean savings in Splicing Man-Hours—up to Fifty Percent.

Limited stocks still available for immediate delivery to industry.

WRITE NOW!

QUAY INDUSTRIES
100 Barr Building
Washington 6, D. C.

(In Canada—Canada Wire and Cable Co., Toronto)

There's profit in wet jobs when you dig "IN THE DRY"
MORETRENCH WELLPOINT SYSTEM

The Moretrench catalog tells you how. Send for your copy.

MORETRENCH CORPORATION
90 WEST STREET
NEW YORK 6, NEW YORK
Chicago, Ill. - Tampa, Fla. - Houston, Tex.

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager ***J. A. MAHONEY, Reports*** ***M. R. ROESSLER, Statistics***

WATER SUPPLY

BIDS ASKED

▲ **Tex., Big Spring**—B.A. 2/7—Colorado River Municipal Water Dist., Big Spring, earthen dam on Colorado River, near Dunn. $1,900,000. Plans deposit $50. Freese & Nichols, 407 Danciger Bldg., Fort Worth, engrs. CD 7/3/46.

▲ **Tex., Big Spring and Odessa**—B.A. 2/7—Colorado River Municipal Water Dist., c/o E. V. Spence, mgr. Big Spring, 25 mi. 30 to 33 in. c.i. concrete or steel water main from point in Martin Co. to Big Spring, $1,300,000; 64 mi. 24 or 27 in. c.i. concrete or steel water main from Big Spring to Odessa. $3,200,000. (Bid date changed.) Freese & Nichols, 407 Danciger Bldg., Fort Worth, engrs. CD 1/10.

LOW BIDDERS

Pennington-Winter Co., Apco Tower, Oklahoma City, 2, Okla., Low Bidder, **$909,946**, est. $930,000 37 mi. 2 to 12 in. c.i. water mains OKLAHOMA CITY, OKLA. City, City Hall, Zone 2. C. C. Bretz, 1912 N. Broadway, engr. CD 5/15/50.

SEWERS, WASTE DISPOSAL

BIDS ASKED

Conn., Norwalk—B.A. 1/30—City of Norwalk, City Hall, Norwalk, sewage treatment plant addns., alterations, Contr. 2, rehabilitation of sedimentation tanks, Contr. 1., South Norwalk.

Ont., Ottawa—B.A. 1/30—Secy. Bd. Control, City 48 Rideau St., Ottawa, 5,663 ft. 60- and 54-in. Rideau River Collector Sewer, Approx. $200,000. J. H. Irvine, c/o owner, engr. CD 8/24/49.

LOW BIDDERS

The Suburban Engineering Co., 15 W. 38 St., New York, N. Y. Low Bidder. **$679,535**, Cont. A, of sewage disposal plant, pumping stations interceptive sewers, etc.*****D. E. Electric Co.**, 82 Chestnut St., Rockville Centre, **$62,817**, Cont. B***Marinelli Constr. Co., 149-44 22nd Ave., Whitestone, **$189,912**, Cont. D**McAndrew Constr. Co. Inc., 120 Liberty St., New York, **$64,800**, Cont. E. PORT WASHINGTON, N. Y. Bd. Sewer Comrs., Port Washington Sewer Dist., Main St. Bids Jan. 4. CD 12/20.

▲ **B & M Constr. Corp.**, Petroleum Bldg., Oklahoma City 2, Okla. Low Bidder. **$1,297,431**. est. $1,321,144. extens. mid-urban sewer through the central portion of city, OKLAHOMA CITY, OKLA. City, City Hall, Zone 2. Bids Jan. 9. CD 12/28.

CONTRACTS AWARDED

▲ **Mancini-Miller-Thompson Constr. Co.**, 23170 Schoenher St., Detroit, Mich. Contract Awarded. **$1,821,976.** (1) general, (2) mechanical equip. piping, (3) plumbing, heatig and ventilating, (4) electrical, sewage disposal plant, SAGINAW, MICH., City, R. A. Benway, 104 City Hall, Saginaw, Mich. CD 12/5, under L.B.

BRIDGES

BIDS ASKED

† **Maryland**—B. A. 2/9—At office H. J. Spelman, div. engr., Bureau P. Rds., Dpt. Commerce, 1440 Columbia Pike, Arlington, Va.

Prince Georges Co.—two rein.-con. bridges over Laurel-Bowie Rd., Baltimore-Washington Parkway, Proj. 1F3. Plans deposit $10.

CONTRACTS AWARDED

▲ **Dufresne Eng. Co. Ltd.**, 1832 Pie IX Blvd., Montreal, Que., Contract Awarded, Approx. **$1,500,000** to **$2,000,000**, ½ mi. long bridge over St. Lawrence River, Coteau-Du-Lac-Valleyfield QUEBEC, Dpt. P. Wks., Quebec City (Prov. Govt.)

STREETS AND ROADS

LOW BIDDERS

▲ **D. A. Collins, Contrg.** 12 Tallmadge Ave., Mechanicville, N. Y. Low Bidder, **$211,418**. est. $235,000. 44 ft. c. conc. Route 32 exten. westerly 0.44 mi. from the dividing line between Washington and Warren Counties to a point approx. ¼ mi. west of canal feeder, east of Glens Falls; 43 ft. skew span corrugated plate arch bridge; 0.15 mi. misc. work. Warren Co.*****John Arborio, Inc.**, W. Cedar St., Poughkeepsie, **$1,898,207**. est. $2,016,000. construct with 22 ft. bit macad. pavement in Towns of Colchester and Andes to connect with recently completed sect. of road on south side of Pepacton Reservoir, exten easterly along south shore of reservoir from point approx. 4½ mi. east of Downsville Dam 7.88 mi. to point approx. 1½ mi. southwest of Shavertown. incl. 0.67 mi. of Town connecting roads, Delaware Co.

Wm. H. Greene, Grand Blvd., Westbury, **$89,435**. est. $92,000, chain link fence construction 4.59 mi. Southern State Parkway exten. easterly from Foster's Meadow Rd. just east of Cross Island Parkway to Eagle Ave. at Hempstead Lake State Park and 4.12 mi. Northern State Parkway exten. easterly from point approx. 1½ mi. east of Route 107 just east of Long Island R. R. (Port Jefferson Branch) to Round Swamp Rd. approx. 1½ mi. west of Route 110, etc. Suffolk and Nassau Counties.

received no bids Jan. 10, twin 24 ft. concrete arteries on 2.53 mi. Captree State Parkway exten. southerly from the Southern State Parkway to Montauk Hy. (Route 27A); pavement on 2.86 mi. access roads, 90 ft. rigid frame highway bridge; 2 span 177 ft. rigid frame structure; 72 ft. rigid frame structure and 3 span 199 ft. rigid frame railroad separation structure, etc. Suffolk Co. Will re-advertise. NEW YORK—Bureau Contracts & Accoupts, Albany. Bids Jan. 10. CD 12/27.

CONTRACTS AWARDED

▲ **White Oak Excavators, Inc.**, 61 E. Main St., Plainville, Conn. Contract Awarded. **$1,243,873**, grading drainage 1.08 mi. Thruway Spur connection, Schenectady Co. NEW YORK, Bureau Contracts and Accounts, Albany. Bids Nov. 15. CD 11/17. under LB.

Atlas Tile & Marble Works, Inc., 238 E. 26 St., New York; 10, N. Y. Contract Awarded, **$743,120**, installing tunnel finish consisting of glazed tile, sidewalk railing, etc., Sec. 4-3; placing brick pavement on the existing concrete base within the north and south tunnel, 4,225 ft., placing c. conc. pavement on the west approach, 70 ft. and the east approach, approx. 1,064 ft. incl. misc. drainage, Sect. 4-4. Squirrel Hill Tunnel on Penn-Lincoln Parkway, Allegheny Co. PENNSYLVANIA, State Hy. Dpt., Harrisburg, Pa. Bids Dec. 28. CD 1/3, under LB.

D. F. & D. R. Farabee, Amity, Pa. Contract Awarded, **$55,783**, crushed stone base with bit. surf. 0.2 mi., 24 ft., 26 ft. and variable in width, one rein-con. bridge over branch of Wissahicken Creek, T. R. 73 in Springfield Twp., Montgomery Co.***Galier Bros. Inc., 4106 Mayfield Rd., S. Euclid, O., **$732,529**. c. conc pavement 2.72 mi., 24 ft., 22 ft., wide; 3 rein.-con. structures, one over Walnut Creek and two over Mill Creek; 3 rein.-con. bridges over Mill Creek and bit. surf. on c. conc. base variable in width for flares, Traffic Routes 97 and 705 in Summit and Mill Creek Twps. Erie Co. PENNSYLVANIA. State Hy. Dpt., Harrisburg, Pa. Bids Dec. 27. CD 1/3, under LB.

EARTHWORK, WATERWAYS

CONTRACTS AWARDED

Canadian General Electric Co. Ltd., 1000 Beaver Hall Hill, Montreal, Que., Contract Awarded, Approx. **$850,000**, transformers for power development, Peribonka River near Isle Maligne at Chute au Diables, QUEBEC. Aluminum Co. of Canada Ltd., Sun Life Bldg., Montreal, Que. CD 8/15, under Que. Peribonka, Unclassified.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Latin America
Public Buildings
Commercial Buildings
Industrial Buildings
Unclassified

Stages Reported

PROPOSED WORK: **Including appointment of engineers or architects.**

BIDS ASKED (new announcements only). **For full calendar, see also preceding issues of ENR.**

LOW BIDDERS: **On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.**

CONTRACTS AWARDED: **Except awards to low bidders previously reported in low bidder stage.**

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	**Federal Government**
▲	**Project of $1,000,000 or over.**
B.A.	**Bids Asked**
ENR	**Engineering News-Record**
CD	**Engineering News-Record Construction Daily**

AIRPORTS

BID ASKED

† **N. M., Alamogordo**—UTILITIES, DRIVEWAYS—B.A. About 2/6—U. S. Eng., P.O. Box 1538, Albuquerque, utilities, Phase III, driveways, Holloman Air Force Base (A-91). Serial No. Eng 29-005-51-16. Plans deposit $10.

PUBLIC BUILDINGS

BIDS ASKED

O., Cuyahoga Falls—CITY HALL—B.A. in February—City, John S. Lowe, Service Dir., Cuyahoga Falls, City Hall on Second St. between Stow Ave. and Oakwood Dr. M. M. Konarski, 844 W. Market St., Akron, Zone 3, archt., Thomas Sauter, city engr. CD 11/10.

† **Md., Camp Detrick**—HOUSING—B.A. 2/1—family quarters, incl. utilities, roads, walks and turfing at Camp Detrick, ENG 49-080-51-49. Bids 9/20 rejected. CD 9/8.

† **Wash., Fort Lewis**—QUARTERS—B.A. 2/6—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, seven 8-family row-type family quarters and one 6-family row type quarters with utilities Serial No. ENG-45-108-51-95. Lt. Col. J. P. Buehler, dist. engr. Plans deposit $10. Extended date.

Yukon Territory, Whitehorse—SCHOOL—B.A. 2/15—Main, Rensaa & Minsos, archts., MacCosham Bldg., Edmonton, monolithic concrete consolidate school, for Comr. for Yukon Territory, Whitehorse.

† **Mich., Detroit**—ARSENAL—Bids Asked—U. S. Eng., 2015 Cadillac Tower, brick, steel arsenal addn., Bldg. 12 tank plant. CD 3/11/46.

LOW BIDDERS

▲ **Waterbury Constr.** Co., 63 Bank St., Waterbury, Conn., Low Bidder, **$643,660**, Chase St. School addn.*****Felix Buzzi & Son**, 612 S. Main St., Torrington, Conn., **$480,000**, Sprague School addn.*****Edward E. Bray Co.**, 362 River St., Bridgeport, Conn., **$443,785**, Hopeville School addn., corner Piedmont and Cypress Sts., WATERBURY, CONN. Bd. Educ., 271 E. Main St. CD 1/6.

Paul Livoli, 922 Belmont St., Watertown, Mass. Low Bidder. **$909,682**. 60 veteran housing units Proj. 200-2, Melendy Ave. and Quimby St., WATERTOWN, MASS., Town of Watertown, Veterans' Housing Auth., Watertown, Mass. Bids Jan. 5.

▲ **S. H. Evert Co., Inc.**, Danville Rd., Bloomsburg, Pa. Low Bidder, **$1,261,008**. est. $998,400. general const. chemistry laboratory bldg. and Pond (chemistry) laboratory addn. and chemistry storage bldg. at Pennsylvania State College. STATE COLLEGE, PA. General State Auth., 18 and Herr Sts., Harrisburg. Bids Jan. 10. CD 1/8.

CONTRACTS AWARDED

Spence Brothers, 417 McCoskry St., Lansing, Mich. Contract Awarded. **$975,046**. 2 story, brick, concrete Ernest W. Potter Elementary School, FLINT, MICH., City, Joseph A. Anderson, secy., Bd. Educ., Flint, Mich. CD 12/8, under L.B.

V. J. Smith, Inc., Corner of Cleveland and Endicott Ave., Johnson City, N. Y., Contract Awarded. **$939,284**, Junior High School. ENDWELL, N. Y. Bd. Educ., Union Free School Dist. 2, Endwell. Bids Nov. 21. CD 12/4, under LB.

Jonwal Constr. Co., 1527 Franklin Ave., Mineola, N. Y. Contract Awarded. **$999,300**. Pine St. School. FREEPORT, N. Y. Bd. Educ., Union Free School Dist. 9, High School, Freeport. Bids Nov. 29. CD 11/13.

Thomas C. Brown Co. Inc., Box 982, Schenectady, N. Y. Contract Awarded. **$642,300**. auditorium and gymnasium and central heating plant. MORRISVILLE, N. Y. Bureau Contracts & Accounts, Albany. Bids Nov. 29. Awarded Dec. 18. CD 12/5, under LB.

COMMERCIAL BUILDINGS

BIDS ASKED

▲ **Tex., Dallas**—APARTMENT-HOTEL, etc.—Bids Asked—E. P. Lamberth and H. D. Lewis, 3918 Gaston St., 13 story luxury apartment-hotel. $3,000,000; 260 auto underground parking garage. $400,000; bathing or swimming pool, appurtenances. $75,000. CD 11/3.

SOON LETS CONTRACT

▲ **Que., Montreal**—HOTEL ADDN.—Barott & Assocs., archt., Canada Cement Bldg., Montreal, soon lets contract, 10 story, rein.-con., store hotel addn., for Ritz-Carlton Hotel Ltd., 1228 W. Sherbrooke St., Montreal, $1,000,000. CD 2/3/47.

LOW BIDDERS

▲ **United American Insurance Co.**, 606 N. Field St., postponed bidding. 6 story office. **$1,000,000.** DALLAS, TEX. Will re-advertise. CD 11/27.

CONTRACTS AWARDED

John W. Phillips, 324 Parr St., Corpus Christi, Tex. Contract Awarded. **$879,439.** 5 story hospital addn. CORPUS CHRISTI, TEX. Spohn Hospital (Sisters of Charity of the Incarnate Word; Mother Benjamin), 1436 3rd St., Corpus Christi. CD 1/10.

▲ **Inge-Hayman Constr. Co.**, 2115 Butler St., Dallas, Tex. Contract Awarded. **$2,850,000.** 20 story bsmnt. office, DALLAS, TEX. Fidelity Union Insurance Co., 912 Commerce St. Awarded Jan. 9. CD 1/4.

INDUSTRIAL BUILDINGS

BIDS ASKED

Pa., Phila.—LAUNDRY—Bids Asked—Liberty Laundry & Supply, 2305 N. 8 St., laundry addn. and alterations. Approx. $82,000. Phineas Zolot, 144 E. 30 St., New York, N. Y. engr..

CONTRACTS AWARDED

▲ **Ebasco Services Inc.**, 2 Rector St., New York, N. Y., design and construct, **$73,000,000,** 500,000 kilowatt electric POWER PLANT to provide power for atomic energy project near Paducah, Ky., to be located on Ohio River near here, JOPPA, ILL. Electric Energy, Inc., c/o J. W. McAfee, pres., 315 N. 12 Blvd., St. Louis, 1, Mo.

▲ **Sargent & Lundy**, 140 S. Dearborn St., Chicago, Ill. Contract Awarded. **$3,200,000.** 15,000 kilowatt GENERATING PLANT at Hoot Lake near Fergus Falls, FERGUS FALLS, MINN., Otter Tail Power Co., C. Wright, gen. mgr., Fergus Falls, Minn. CD 3/17/49.

Sam W. Emerson Co., 1836 Euclid Ave., Cleveland 15, O. Contract Awarded. **$750,000.** 1 story 500x800 ft. steel, brick PLANT addn., 4 other smaller bldgs. EUCLID, O. Thompson Products, Inc., 23555 Euclid Ave., Euclid. Albert Kahn Associated Architects & Engineers, Inc., 345 New Center Bldg., Detroit, Mich., archt.

J. R. Murphy & Co., 2424 Cypress St., Fort Worth, Tex. Contract Awarded. **$250,000.** FERTILIZER PLANT addn., FORT WORTH, TEX. International Minerals & Chemical Corp., c/o M. H. Lockwood, 2424 Cypress St., Fort Worth.

Woodall Brothers, 1711 Walker Rd., Windsor, Ont. Contract Awarded. **$600,000.** 2 to 6 story, 90x115 ft., rein.-con., brick automotive PLANT, WINDSOR, ONT. Ford Motor Co. of Canada Ltd., 2780 Sandwich St. E., H. K. Ferguson & Co., 25 W. 43 St., New York, N. Y., engrs. CD 2/21.

UNCLASSIFIED

BIDS ASKED

† **N. C., Camp Lejeune**—TRACTOR RAMP—B.A. 2/9—Pub. Wks. Office, Bldg. No. 1005, Marine Barracks, Camp Lejeune, amphibious tractor ramp, Bldg. A-3, Courthouse Bay at the Marine Barracks. Spec. No. 26193. Plans deposit $10.

CONTRACTS AWARDED

East Texas Telephone Co-operative, Laneville, Tex. Purchase and Hire. Approx. **$85,000.** 72 mi. pole line rebuilding and pole sys. rehabilitation, Laneville, Rusk Co. TEXAS. CD 12/13.

Altgelt Constr. Co., 429 N. Port St., Corpus Christi, Tex. Contract Awarded. **$785,000.** 67 mi. 16 in. natural gas pipe line between Lopeno and Laredo*** **Gulf Coast Pipe Coating Co.**, E. Hy. 80, Grand Prairie, Tex. **$176,000.** gas pipe line coating for 67 mi. 16 in. pipe. LOPENO, TEX. V. M. Newhouse, Mission, Tex. CD 1/8.

City, City Hall, Military Plaza, San Antonio, Tex. Force Account. Approx. **$60,000.** Harlandale Park, SAN ANTONIO, TEX. W. W. Toxey, city engr.

North Western Utilities Ltd., 1014 104 St., Edmonton, Alta., Owner builds, **$100,000,** natural gas mains and services, to Minburn, Innisfree and Ranfurey; **$65,000,** natural gas mains and services, Mannville, ALBERTA. CD 4/4.

Whitehead Co. Ltd., 14 Strachan Ave., Toronto, Ont., Contract Awarded, 918 tons reinforced steel bars for S-6; **Bethlehem Steel Export Corp.**, Royal Bank Bldg., Toronto, Ont., unfabricated structural steel for S-54, TORONTO, ONT. Toronto Transportation Comn., 35 Yonge St., Toronto, Ont. CD 10/23.

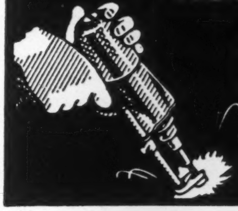
PROPOSED PROJECTS

WATER SUPPLY

Ariz., Safford—City, double city water supply with expansion 21 mi. system, new wells, exten., imprv. natural gas service, **$800,000.**

Tex., Farmersville—City and Collin Co., Farmersville, water distr. main radiating from Lavon Storage Dam now under construction **$500,000.** Forrest & Cotton, Praetorian Bldg., Dallas, consult. engrs.

NOW...use the cost-saving
NELWELD* method
Anywhere!

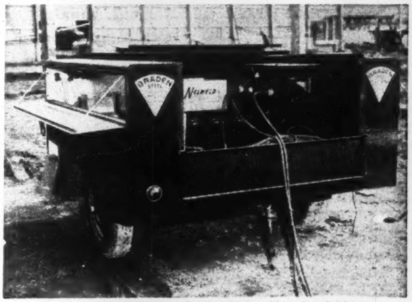


Self-Contained Battery Unit -- Designed For Construction Work -- Operates Nelson Stud Welder

Now, any contractor can profitably use the NELWELD method of fastening—*in any location.* With the new Nelwelder Battery Unit, you need only a 110 volt AC convenience outlet for recharging during or after the day's work. Particularly useful wherever welding generators or necessary power are not available, the Battery Unit end-welds Nelson fastener studs up to 1/2-inch in diameter.

You can rent or purchase Nelson stud welding equipment—and the Nelwelder Battery Unit—to install many types of materials better, faster, and at substantial cost-savings. It will pay you to send for all the facts — *today.*

* Trademark Registered



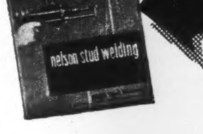
Custom-built Battery Trailer Units Also Available

Install These Materials Better, At Far Less Cost with the NELWELD Method

- Roofing and Siding
- Gunite Reinforcement
- Insulating Materials
- Metal Windows
- Sprinklers
- Electrical Equipment

Nationwide service from Nelson Field Engineers — Authorized Dealers — Approved Applicators

Nelson Construction Fasteners are Distributed by United States Steel Supply Co.
Reynolds Metals Co. - Philip Carey Mfg. Co. - Johns-Manville
Southern States Iron Roofing Co. - Armstrong Cork Co.



SEND FOR BOOKLET
"Nelson Stud Welding in the Construction Industry"

NELWELD

Nelson Stud Welding
DIVISION MORTON GREGORY CORPORATION
2764 TOLEDO AVENUE LORAIN, OHIO

Tex., McKinney—City and Collin Co., water distr. main radiating Lavon Storage Dam now under construction. **$650,000.** Forrest & Cotton, Praetorian Bldg., Dallas, consult. engrs.

N. S., Halifax—Municipality, water services to area between Arm Bridge and Fairview underpass, **$783,000.** Public Service Comn., Halifax, engr.

SEWERS, WASTE DISPOSAL

Colo., Colorado Springs—City, City Hall, sewer system expansion Incl. city's sewer sys. exansion, **$576,244.** Black & Veatch, 4706 Broadway, Kansas City, Mo., consult. engrs. CD 6/4/45.

▲ **Ill., Peoria**—City, City Hall, sewer works, and sewer lines rehabilitation, **$10,000,000.** Crawford, Murphy & Tilly, 400½ E Adams St., Springfield, consult. engrs. CD 2/15/49.

▲† **Kentucky**—U. S. Eng., 8th and Broadway, Louisville, pumping plants at 5, 10 and 17 Sts., for flood wall, **$500,000;** pumping plants at Buchanan and 4 Sts. and State Fair Grounds, **$2,000,000** to **$3,000,000.**

Mass., Weymouth—Town of Weymouth Sewer Comrs., Town Hall, sewer exten., South Weymouth trunk sewer to Columbian Equare, South Weymouth. **$700,000.** CD 2/25/46.

N. Y., Springville—Village, sanitary sewers, treatment plant. **$600,000.**

▲ **Va., Alexandria**—City, City Hall, sewage treatment plant and pipe line. **$4,500,000.** CD 3/9/45.

Ont., Hamilton—City, J. F. Berry, clk., City Hall, Mountain trunk sewer, sewer in Fennel and Greenhill Aves. of box culvert and tunnel construction, with about 300 tons steel required on this 3,500 ft. section. **$600,000-$750,000.** W. F. McCaul, City Hall, city engr. Proctor, Redfern & Laughlin, 11 Jordan St., Toronto, engrs. CD 4/25.

STREETS AND ROADS

Fla., Jacksonville—Duval Co. Bd. Comrs., Court House, secondary road imprvts., **$500,000.** Arthur Sallee, c/o owner, co. engr.

Tex., Brownsville—City, concrete curbs, gutters, and street paving, **$600,000** total est. $1,800,000; resurf., repairing streets, **$150,000,** Sigler, Clark & Winston, Box 428, Weslaco, consult. engrs. CD 12/18.

EARTHWORK, WATERWAYS

▲ **Calif., Ventura**—Bd. Supervs. Ventura Co., imprv. chanel of Santa Paula Creek and levee system on Santa Clara River, **$6,000,000.** Robert L. Ryan, c/o owner, engr.

▲ **British Columbia**—Aluminum Co. of Canada Ltd., Sun Life Bldg., Montreal, Que., water power in Tweedsmuir Park Area, incl. dam in grand canyon of Nechako River, initial development of 500,000 hp. power plant on Menano River, 1,000 hp. power plant at Chilio-Bute Inlet; 875,000 hp. Tahtsa-Kemaino; 1,000,000 hp. Eutsuk-Whitesail power lines to Kitimat on coast, smelter at Kitimat to process bauxite. Approx. **$500,000,000.** CD 7/19/48, under Industrial Buildings.

AIRPORTS

▲† **Calif., Miriman**—AIR STATION—Dpt. Navy, Yards & Docks Annex, Arlington, Va., Brown Field Auxiliary Air Station, **$4,022,000.** Miramar Naval Air Base, **$13,488,000.**

▲† **Calif., San Diego**—ADDITIONAL FACILITIES—Dpt. Navy, Yards & Docks Annex, Arlington, Va., North Island Naval Air Station addnl. facilities, **$2,360,000.**

▲ **Calif., San Francisco**—PASSENGER TERMINAL—Pub. Utilities Comn., City Hall, plans by W. P. Day & Assocs., 111 New Montgomery St., 200x400 ft. ground floor 6 addnl. floors and control tower passenger terminal, **$6,000,000.** CD 11/16/49.

▲† **Pa., Phila.**—AIR MATERIAL CENTER—Dpt. of the Navy, Phila. Naval Base, Phila., plans by The Ballinger Co., 121 N. Broad St., Naval Air Material Center, addnl. development test and supporting facilities, **$1,000,000.** CD 1/4.

† **Wash., Moses Lake**—OPERATIONS BLDG., etc.—U. S. Eng., 4537 E. Marginal Way, Seattle, Zone 4, plans by Young & Richardson, Carleton & Detlie, Central Bldg., Seattle, Zone 4, operations bldg. and control tower for Larson Air Force Base, **$500,000.** CD 12/28/49.

LATIN AMERICA

Mexico—Chihuahua State Govt., Palacio del Estado, Chihuahua, Chihuahua, plans road and irrigation works in 1951. **$1,200,000.** CD 11/13/46.

Mexico—Petroleos Mexicanos (Pemes) Juarez, 10, Mexico City, plans various constructions, incl. lubricants plant, during 1951. **$30,350,000.**

Mexico, Mexico City—Municipal Govt., D. G. de A. Vs. Palacio Municipal, Mexico City, plans WW and sewerage in 1951. **$4,620,000.**

PUBLIC BUILDINGS

Ark., Conway—HOSPITAL—City, voted bonds Dec. 19, hospital, **$585,000.** CD 11/22.

▲† **Calif, Camp Pendleton** — BARRACKS, etc. — Dpt. Navy, Yards & Docks Annex, Arlington, Va., barracks and men facilities, **$4,000,000;** sewage sys., **$286,000.**

Calif., Fairfield—SCHOOL—Armijo Union High School Dist., Box 483, **$514,000** voted bonds, high school addns., near here.

▲† **Calif., Fallbrook** — AMMUNITION DEPOT, etc.—Dpt. Navy Yards & Docks Annex, Arlington, Va., ammunition depot, **$191,000;** Santa Margarita dams and reservoirs, **$1,011,000.**

Calif., Long Beach—SCHOOL—City School Dist., 715 Locust Ave., plans by James R. Friend, Kress Bldg., Patrick Henry School. **$500,000.** CD 11/18/46.

Calif., Marysville—COURT HOUSE—Bd. Supervs., Yuba Co., Court House, county court house, **$500,000.**

† **Calif., Miramar**—BOILER HOUSE, etc.—Dpt. Navy, Yards & Docks Annex, Arlington, Va., boiler house and equipment at Naval Training Center, **$902,700.**

▲† **Calif., San Diego**—RECRUITING DEPOT BARRACKS—Dpt. Navy, Yards & Docks Annex, Arlington, Va., Marine Corps. Recruiting Depot temporary barracks, **$2,548,000.**

▲ **Calif., San Francisco**—SCHOOL—City and San Francisco Co. Bd. Educ., Civic Auditorium, plans by Bliss & Hurt, Trudell and Berger, 717 Market St., San Francisco, Benjamin Franklin Junior High School alterations with rein.-con., steel frame. **$1,000,000.** CD 11/17/48.

▲ **Colo., Colorado Springs**—SCHOOLS—School Dist. 11, Colorado Springs, plans by Thomas & Sweet, 224 Colorado Springs National Bank Bldg., school in Knob Hille Sect., **$400,000;** school south of Patty Jewett Golf Course, **$400,000;** school east of Bonnyville **$400,000;** plans by Edward L. Bunts, 21 E. Monument St., Junior High School, approx. **$300,000.**

Conn., Meriden—HOUSING—City Housing Auth., City Hall, plans by William H. Mackay, 30 Colony St., 140 housing units, **$500,000.**

Conn., Milford—SCHOOLS—Town, Bd. Educ., Town Hall, plans by Jesse James Hamblin, 1188 Main St., Bridgeport, brick, steel, concrete Woodmont School, Brewster Rd., **$550,000;** 9 classrooms, auxiliary units, W. Main St., **$300,000.** CD 12/15.

Ill., Sterling—HOSPITAL—City, City Hall, plans by Hubbard & Hyland, 303 N. Main St., Rockford, hospital addn. **$700,000.** Perkins & Will, 309 W. Jackson St., Chicago, 6, Ill., assoc. archts.

▲ **Ind., Richmond**—LIGHT PLANT—Bd. P. Wks., Earl Beck, supt. light plant, City Hall, municipal light plant expansion **$3,000,000,** Sargent & Lundy, 140 S. Dearborn St., Chicago, Ill., consult. engrs.

change to challenge in '51...
...the leader!
GIVES YOU MORE CUBIC FEET OF DRUM SPACE PER DOLLAR...
make your * own comparison

Compare the cost! Compare the cubic feet of drum space!

. . . of the Challenge with ANY other mixer . . . you'll readily see why you get far more for your money with Challenge, *the leader.*

For example, using the same curve standards set forth by the Truck Mixer Manufacturers Bureau, the 1951 model Challenge 5 yard mixer has 241 feet of drum area . . . 24 cubic feet MORE than competitive 4½ yard machines . . . yet the Challenge sells for hundreds of dollars LESS! . . . weighs many hundreds of pounds LESS!

These outstanding Challenge features are accomplished without sacrificing quality in any way . . . metal used for Challenge drums, for instance, is of the same thickness, or greater, as that used for all other major mixer drums. The Challenge Mixers are completely new . . . not old-fashioned mixers made over or stripped down . . . but carefully engineered and streamlined for maximum working efficiency, using rugged, lightweight, high-tensile steel throughout. In four short years Challenge has become the leader in the truck mixer field . . . imitated by most other major truck mixer manufacturers . . . clip the coupon below, get detailed information, including prices and name of the dealer in your area.

** Make arrangements for a demonstration of the 1951 Challenge on your toughest pour of either high or low slump concrete.*

COOK BROS. EQUIPMENT CO.

Please send me complete information on the 1951 Challenge Mixer, together with prices and the name and address of my nearest Challenge dealer.

NAME ....

ADDRESS ....

CITY ............ZONE.....STATE.......

COOK BROS.
EQUIPMENT CO.
EXCLUSIVE NATIONAL
DISTRIBUTORS FOR
CHALLENGE
the modern, streamlined truck mixers

1815 N. Broadway, Los Angeles 31, Cal. Phone CApitol 2-9111

▲ **Ia., Cedar Falls**—SCHOOL—Bd. Educ., plans by Tinsley, Higgins & Lughter, 526 Liberty Bldg., Des Moines, high school, **$1,000,000.** CD 6/25/45.

Ia., Des Moines—SCHOOL—Bd. Educ., 629 3 St., plans by Dougher, Rich & Woodburn, Garver Bldg., Technical School addn. **$800,000.** CD 2/1/45.

Ia., Harlan—HOSPITAL—Shelby Co., Harlan, plans by Dougher, Rich & Woodburn, Garver Bldg., Des Moines, hospital. **$600,000.** CD 1/3.

▲ **Kan., Kansas City**—POWER PLANT—Bd. Pub. Utilities, G. B. Little, secy., (1st Phase) 40,000 kw turbine generator, power plant extensions, ultimate capacity 120,000 kw. Three year program. **$9,000,000,** Burns & McDonnell Engineering Co., 95 and Troost Sts., Kansas City, Mo., engr. CD 11/24/46.

Kan., Wichita—SCHOOLS—Bd. Educ. Dist. I. Wichita, plans by W. I. Fisher, Central Bldg., school near Stafford Court and The Canal, **$300,000;** plans by Schmidt, McVay & Peddie, 1932 E. 2 St., East High School addn., **$500,000.** CD 10/4/49.

† **Ky., Fort Campbell**—BARRACKS—Dpt. Army, Ft. Campbell, Ky. project abandoned, rehabilitation of 30 blocks of barracks. CD 12/8.

▲† **Ky., Lexington**—SCHOOL—Dpt. Army, Lexington Signal Depot, signal supply school, maintenance and supply shop, out door storage area, oil and paint storage area, refrigerated storage bldg., **$1,844,500.**

▲ **Mass., Worcester**—SCHOOL—City, School Dpt., City Hall, plans by G. Adolph Johnson, 390 Main St., Rockwood Junior High School, **$1,800,000.** Architects' Collaborative, 96 Mt. Auburn St., Cambridge, Mass., consult. engr.

▲ **Mich., Adrian**—SCHOOL—City, Bd. Educ., plans by Louis C. Kingscott & Assoc., 208 Elm St., Kalamazoo, 3 story, brick, steel, concrete Junior High School, **$1,000,000.**

▲ **Mich., Ann Arbor**—LIBRARY, etc.—University of Michigan, Dr. Alexander G. Ruthven, pres., Admin. Bldg., brick, steel, concrete library addn., **$3,100,000;** alterations, imprvs. West Medical Bldg., **$300,000;** brick, steel fire station on College Campus, **$300,000.**

Mich., Grand Rapids—HOSPITAL—State, A. N. Langius, dir., Bldg. Dpt., State Office Bldg., Lansing, brick, steel Sunshine Tuberculosis Hospital addn., **$600,000.**

Mich., Saginaw—HOSPITAL—Saginaw Co. Hospital, Bd. Trustees, two 1 and 2 story hospital addns., 1 story contagious unit adn., 3 story tuberculosis addn., **$600,000.**

▲ **Mich., Saginaw**—HOUSING—City, Saginaw Housing Comn., 265 brick housing units Proj. EPHA, on 18 acres, North Sixth Ave. and Saginaw River Sect., **$3,000,000.**

▲ **Minn., Minneapolis** — HOUSING — City, Minneapolis Housing and Redevelopment Auth., 409 A, City Hall, A. G. Godward, dir., plans by Lang & Raugland, 802 Wesley Temple Bldg., Larson & McLaren, 1901 Foshay Tower, Armstrong & Schlichting, 5 E. 22 St., and Long & Thorshov, 400 Metropolitan Life Bldg., constr. 184 housing units Site F, William and St. Mary's Ave. S. E.; 316 housing units, Site D, N. E. Minneapolis; 500 housing units, Site K, north Minneapolis, **$11,700,000.**

▲ **Minn., St. Paul**—SCHOOL—Bd. Educ., H. F. Garlough, supt., voted **$1,400,000** bonds, Dec. 12, high school, West St. Paul.

▲ **Neb., Omaha**—AUDITORIUM—City, City Hall, 18 and Farnam Sts., voted bonds, municipal auditorium. **$6,000,000.** L. A. Daly Co., Insurance Bldg., archt. CD 9/25.

† **N. J., Camden**—ARMORY—U. S. Eng., First & Douglas Sts. N. W., Wash., 25, D. C., reserve armory, **$400,000** to **$800,000.**

N. J., Glen Ridge—HIGH SCHOOL—Bd. Educ., 3 High St., plans by Micklewright & Mountford, 72 Ewing St., Trenton, 1 story, L-shaped, brick Glen Ridge High School addn **$600,000.** Dr. Felix J. McCormick of Columbia University, Field Studies Inst., Administrative Offices, 116 St. and Broadway, New York, N. Y. consult. archt. CD 12/20/45.

† **N. J., Hackensack, Lodi and Passaic**—ARMORY—U. S. Eng., First & Douglas Sts. N. W., Wash., 25, D. C., reserve armory, **$440,000** to **$800,000.**

† **N. J., Newark-Kearny-Orange Area**—ARMORY—U. S. Eng., First & Douglas Sts. N. W., Wash., 25, D. C., new reserve armory **$440,000** to **$800,000.**

† **N. J., Trenton**—ARMORY—U. S. Eng., First & Douglas Sts. N. W., Wash., 25, D. C., reserve armory, **$440,000** to **$800,000.**

† **R. I., Davisville**—RENOVATION—U.S. First Naval Dist., 495 Summer St., Boston, Mass., renovation. **$850,000.**

† **Tenn., Memphis**— PROCESSING BLDG., etc — Dpt. Army, The Pentagon, Wash. 25, D. C., engineer equipment processing bldg.; automotive field maintenance shop; engineer sand blast and paint shop, **$667,800.** at Memphis General Depot.

▲ **Tex., Austin**—LAW—University of Texas, Austin, plans by Mark Lemmon, 1210½ Main St., Dallas, law bldg. **$1,850,000.** CD 3/4/49.

Tex., Brownsville—CIVIC CENTER—City, civic center, **$800,000.** Sigler, Clark & Winston, Weslaco, consult. engrs. CD 12/18.

Tex., Eagle Pass—HOUSING—Eagle Pass Housing Auth., Eagle Pass, 54-low rental housing units. **$532,000.**

† **Tex., Mineral Wells**—BUILDINGS—Dpt. Air Force, Pentagon Bldg., Wash., D. C., reconditioning building now existing, and constr. addnl. required bldgs. for Air Force, **$750,000.**

Tex., San Antonio—SCHOOL—Northeast Rural High School Dist. 6, c/o Victor Beck, Route 2, voted bonds, school. **$712,000.**

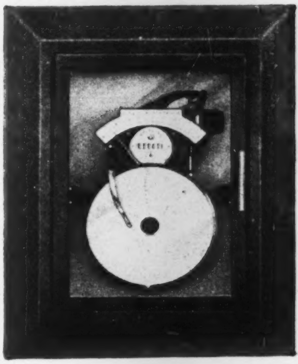
SPARLING MAIN-LINE METERS

for Your

MASTER RECORDS

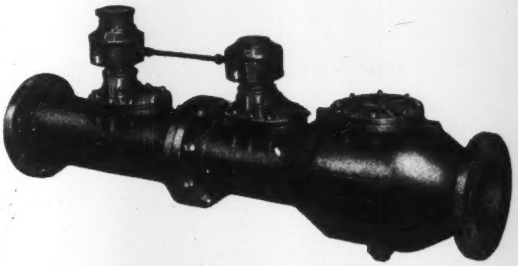
Every man responsible for water service knows the hazard of *guessing*. It is not enough to know the *rated* capacity of a pump. What is it doing right *now?*

The instrument at right tells all—direct totalization—present rate of flow—a complete picture of each 24 hours' or 7 days' deliveries. It can be installed close to, or miles away from, the Sparling Direct Action Meter that controls it.



and Practically NO Pressure Loss!

Sparling Meters are noted for their conservation of line pressure. Even the Compound Meters—shown below, with flow ranges as high as 1 to 125—show less head loss than ordinary meters. That is part of Sparling economy.



Bulletin 311
comes upon
request

SPARLING METER COMPANY
INCORPORATED

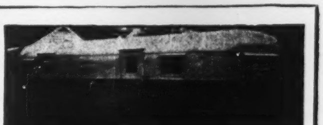
LOS ANGELES 54 .... Box 3277
CHICAGO 8 .... 1500 South Western Ave.
BOSTON 8 .... 6 Beacon Street
DALLAS 1 .... 726 Reserve Loan Life Bldg.
626 Broadway .... CINCINNATI 2
101 Park Avenue .... NEW YORK 17
1932 First Avenue .... SEATTLE 1
66 Luckie Street N.W. .... ATLANTA

PHOENIX BRIDGE
COMPANY

Engineers—Fabricators
Erectors
Structural Steel
BRIDGES and BUILDINGS

General Office
and Shops
PHOENIXVILLE, PA.

Subsidiary—Barium Steel Corporation



CONTRACTORS' FIELD OFFICE
TRAILER

Designed by Road Contractor
28' Aluminum Body—8' Wide
2 Rooms—2 Built-in Desks
1 Drafting Table—Built-in
Letter Files—Cabinets—
Closets—Drawers—etc.
Price $2845.00 f.o.b. Baltimore

TRAILER VILLAGE, INC.
8645 Pulaski Highway, Baltimore 21, Md.
Phone: Essex 2233

Moto-Paver
SPEEDS THE JOB
CUTS THE COST

No other machine or method produces comparable results at comparable costs

The *Moto-Paver* provides a highly efficient method of paving and resurfacing roads and streets. With this self-propelled machine, the *mixing* and *laying* of a cold bituminous mat is accomplished in one continuous operation. Uniformity of mix and a smooth riding surface are assured. The *Moto-Paver* has been successfully operated using gravel, stone or slag aggregates, and with most types of emulsions including RC, MC and SC asphalt and tars. Its mobility, together with the small operating crew and the minimum amount of auxiliary equipment required, make the *Moto-Paver* ideal for out-of-the-way jobs and maintenance, as well as for new construction. Bulletin MP-49 gives complete information.

HETHERINGTON & BERNER INC.

Engineers • Manufacturers

730 KENTUCKY AVE. INDIANAPOLIS 7, IND.

DREDGES

HYDRAULIC
● DIPPER ●
CLAMSHELL

Bolted sectional steel hulls for landlocked, inland waters

If you need a dredge, write us!

AMERICAN STEEL DREDGE CO.INC.
FORT WAYNE 1 · INDIANA · U.S.A.

DESIGNERS AND BUILDERS OF DREDGING EQUIPMENT SINCE 1905

"GUNITE" CONCRETE
(Since 1915)

FOR • STEEL PLATE LINING • STEEL ENCASEMENT • BUILDING NEW WALLS • LINING WATER RESERVOIRS, TUNNELS AND SEWERS • PLATE LINING OF STEEL STACKS, BUNKERS, DUCTS • REPAIR OF DISINTEGRATED CONCRETE AND MASONRY • CANAL, DITCH AND DRAIN LINING

GUNITE CONCRETE & CONST. CO.
1301 Woodswether Rd., Kansas City 6, Mo.

District Branch Offices

S. T. Burton Co., 228 N. LaSalle St., Chicago 1, Ill.
George R. Lewis Co., 1200 Baker Bldg., Minneapolis 2, Minn.
B. H. Mueller Co., 6625 Delmar Blvd., St. Louis 5, Mo.
Ole K. Olsen Co., 823 Perdido St., New Orleans, La.
Philip D. Barnard, 2036 Addison, Houston 5, Tex.
Western Steel Prod. Co., 1755 W. 13th Ave., Denver 4, Colo.

Tex., Terrell—HOSPITAL—Board for State Hospitals & Special Schools, 45 and Lamar Sts., Austin, plans by Walter C. Moore, Bd. Superv. Archt. c/o owner, psychiatric hospital unit. **$750,000.** CD 1/5/49.

Wash., Ephrata—SCHOOL—School Bd., Ephrata, plans by J. M. Taylor, Jr., Arcade Bldg., Seattle, Zone 1, high school, **$600,000.** CD 11/24.

Wash., Hoquiam—SCHOOL—School Bd., Hoquiam, grade school and administration bldg., **$650,000.**

Wis., Kenosha—SCHOOL—Bd. Educ., voted down construction high school, **$700,000.** L. Monberg, 600-68 St., archt. Bradley & Bradley, Rockford, Ill., archts. CD 11/14.

Wis., Manitowoc—SCHOOLS—Bd. Educ., plans by Childs & Smith, 20 N. Wacker Dr., Chicago, Ill., two schools, **$650,000.**

▲† **Alaska, Fort Richardson**—SHOP, etc.—U. S. Eng. (APO 942, c/o PM, Seattle, Wash.), Anchorage, plans by Young & Richardson, Carleton & Detlie, Central Bldg., Seattle 4, Wash., 100x400 ft. engineering shop bldg. with 30x160 ft. admin. bldg. wing 120x460 ft. quartermaster repair shop with 22x180 ft. lean-to area; 75x160 ft. signal repair shop; 72x165 ft. freight-handling equip. bldg., 60x200 ft. combined shop bldg., steel, frame, masonry const. in general depot area. **$2,000,000.** CD 11/27.

▲ **Alta., Edmonton**—HOSPITAL—Dpt. P. Wks., (Prov. Govt.) Edmonton, plans by Mortland, & Aberdeen, 108 Agency Block, Edmonton, 200-bed 3 story, 200x236 ft., I-shaped, tile constr. hospital for Alberta Workmen's Compensation Board, Belgravia Estate Subdivision, Approx. **$1,500,000.** CD 5/24.

N. S., Sydney—SCHOOL—City, T. Gallagher, mayor, plans by A. N. MacLeod, Royal Bank Bldg., Sydney, 3 unit high school institution, Approx. **$750,000.** CD 11/23/49.

▲ **Ont., Chalk River**—REACTOR UNIT, etc.—Purchasing Agent National Research Council, Sussex St., Ottawa, national reactor unit at automatic plant. Approx. **$30,000,000.**

Ont., London—SCHOOL—Bd. Educ., London, plans by R. D. Schoales, Bd. Educ., London, school in southeast London. **$700,000.** CD 1/25/45.

▲ **Ont., Ottawa**—LABORATORY—National Research Council, Sussex St., plans by J. C. Meadowcraft, 4115 Sherbrooke St. W., Montreal, Que., 3 story, 200x200 ft., steel frame; brick, terra-cotta, stone, stucco building inspection laboratory, at Montreal Road Laboratories. Approx. **$1,200,000.** J. P. Keith & Assoc., 4935 Clanranald Ave., Montreal, Que., engrs.

▲ **Ont., Owen Sound**—HOSPITAL—Owen Sound General & Marine Hospital, Owen Sound, defeated **$1,000,000** civic vote hospital expansion. Craig & Madill, 20 St. Clair Ave., W. Toronto, archts. CD 11/10.

COMMERCIAL BUILDINGS

Calif., Los Angeles—DWELLINGS—La Sage Development Co., 424 S. Beverly Dr., Beverly Hills, plans by Wm. Bray 5670 Wilshire Blvd., 52 frame, stucco dwellings Sherman Way, Van Nuys Dist. **$500,000.**

Calif., Norwalk—DWELLINGS—Moss Constr. Co., 227 S. Robertson St., Beverly Hills, 75 frame, stucco dwellings in Tract 16894. **$525,000.**

Colo., Denver—OFFICE—Henry Replin, 1399 Vine St., plans by W. C. Muchow, archt and engr., 419 Colorado Blvd., 4 story office, 1550 Grant St. **$500,000.** Texas Co., lessee.

Ill., Decatur—MEDICAL CENTER—Decatur Realty Co., Decatur, plans by Lyle V. DeWitt, Decatur, medical center to accommodate 24 doctors, with parking facilities, **$500,000.**

Md., Baltimore—RESIDENCES—Wm. A. Casale, 839 Chapelgate Lane, Catonsville, fifty 2 story, bsmnt., 19x36 ft., brick residences, **$500,000.**

▲ **Md., Baltimore**—RESIDENCES—Lake Falls Constr. Co., Claude Milburn, 608 Cathedral St., one hundred 2 story, bsmnt., 16x32 ft. and 14x30 ft. row type residences, **$1,000,000.**

▲ **Mass., Springfield**—RESIDENCES—Evergreen Park Development Co., Inc., L. S. Temen, pres., 11 W. 42 St., New York, N. Y., plans by Donald S. Gilman, 1433 Main St., three hundred 1½ story, 24x36 ft., bsmnt., wood frame single residences, Bradley Rd. and Plumtree St., **$4,000,000.**

▲ **Mich., Pontiac**—HOSPITAL—Oakland Hospital, H. L. McGregor Jr., chn., E. A. Tomlinson, pres., Hospital Bldg. Comn., 7-226 Grand Motors Bldg., Detroit, plans by Ellerbe & Co., E. 505 First National Bank Bldg., St. Paul, Minn., brick, steel, concrete hospital, Adams and Woodward Sts., **$3,500,000.** Site changed. CD 12/11, under Royal Oak, Mich.

▲ **Mo., Kansas City**—HEADQUARTERS BLDG.—American Hereford Assn., 11 and Central Sts., Kansas City, Mo., plans by J. W. Radotinsky, 1401 Fairfax Trafficway, Kansas City, Kan., headquarters bldg., **$1,000,000.**

▲ **N. J., Trenton**—APARTMENT DEVELOPMENT—Henry & Stanley Inc., Broad St. Bank Bldg., apartment development. **$2,500,000.**

▲ **N. Y., Brooklyn**—APARTMENTS—Tengate Constr. Corp., 885 Flatbush Ave., Zone 26, plans by Morris Rothstein & Son, 186 Jornalemon St., Zone 2, two 6 story apartments for 288 families at 794-844 Midwood St. **$2,900,000.**

▲ **N. Y., New York**—APARTMENT—200 East End Ave. Corp., 28 Cow Lane, Great Neck, plans by Lathrop Douglas, 518 Fifth Ave., Zone 18 and Severud-Elstad-Krueger, 415 Lexington Ave., Zone 17, 16 story apartment, East End Ave. from 89 to 90 Sts. **$2,112,000.**

N. Y., Rego Park—APARTMENT—Saunders 86th Street Corp., c/o T. S. Bien, archt., 565 Fifth Ave., New York, Zone 17, 7 story, 134x196 ft. apartment, Saunders St. east of 63 Dr. **$900,000.**

▲ **O., Fairview Park**—APARTMENT—Chas. J. Rini, 1185 Homeland Dr., plans by Michael G. Boccia, Osborn Bldg., Cleveland, six 2½ story, U-shaped bldgs., nine 2 story row houses, eight 2 story apartments, combination medical center and admin. bldg. **$2,000,000.**

O., South Euclid—HOSPITAL—Benjamin Rose Institute, Rose Bldg., Cleveland, 5 story bsmnt., 59x153 ft. masonry, steel hospital, rein.-con. floors. **$800,000.** Garfield, Harris, Robinson & Schaefer, 1740 E. 12 St., Cleveland, consult. engrs. and archts.

Ore., Portland—STORE—J. J. Newberry Co., Failing Bldg., plans by Glen Stanton, Concord Bldg., remodel and enlarge store at 5 and Alder Sts. **$700,000.**

Pa., New Castle—OFFICE—Bell Telephone Co., 416 Seventh Ave., Pittsburgh, plans by J. W. Dorsmus, c/o owner, 2 story bsmnt., 75x103 ft. brick, concrete, steel central office. **$500,000.**

▲ **Pa., Phila.**—STORE, etc.—Henry Parker, c/o Albert M. Greenfield & Co., 1325 Walnut St., plans by Thalheimer & Weitz, 1325 Walnut St., store and garage. **$1,500,000.**

Pa., Pittsburgh—APARTMENTS—Washington Apartments, Inc., 980 Union Trust Bldg., plans by Phillip Friedman, 121 S. Negley Ave., 3 two story bsmnt., 92x109 ft., and two 1 story bsmnt., 52x68 ft. apartments. **$600,000.**

Tex., Corpus Christi—DEPARTMENT STORE—Joskes of Texas, Alamo Plaza, San Antonio, department store, city block on Bayfront, **$750,000.**

▲ **Tex., Dallas** — MERCANTILE — Nieman-Marcus Co., Main and Ervay Sts., plans by DeWitt & Swank, 2025 Cedar Springs St., 6 story, bsmnt., masonry mercantile, Commerce St. old Keating Bldg., **$3,000,000;** 6 story, bsmnt., 35,000 sq. ft. mercantile bldg. addn. facing Commerce St., **$475,000.** CD 4/7/50.

▲ **Tex., Waco**—HOUSING—Dpt. of Air Force, The The Pentagon, Wash. 25, D. C., construct, manage and finance, 500 family housing units on the Conally Air Force Base reservation. Milam & Roper, 700 N. Buckner St., Dallas and Harry L. Spicer-J. W. Bush., Amicable Bldg., Waco, engrs. and archts. CD 5/17.

Wash., Tacoma—HOUSES—Tietz Constr. Co., Lakewood, Tacoma, 69 houses east of Clover Park High School. **$897,000.**

Ont., Toronto—APARTMENT BLOCK—Louis Schwartz, 955 Gerrard St. E., plans by Wilfred Shulman, 463 Sadina Ave., 60 suite, 4 story, 90x176 ft., apartment block, Bathurst St. and Riddell Ave. **$500,000.**

▲ **Que., Aylmer East**—HOUSES, etc.—Caine & Miller Syndicate, Joseph Caine, c/o J. R. Therien, mayor, Aylmer East, 1,000 houses and tenement type bldgs. at east side of town. Approx. **$11,500,000-$12,000,000.**

INDUSTRIAL BUILDINGS

▲ **Calif., Sacramento**—FACTORY—Aerojet Engineering Corp., 332 N. Irwindale Ave., Azusa, plans by Donald R. Warren, 3109 Wilshire Blvd., Los Angeles, rein.-con. numerous factory buildings **$6,000,000.** May Bilt Inc., c/o owner, will let contracts.

▲ **Ill., Chicago**—PLANT, etc.—Allied Chemical & Dye Corp., Barrett Div., 2800 S. Sacramento St., Zone 23, increase facilities for manufacture phtalic anhydride, refining facilities addn. and build power house. **$4,500,000.**

▲ **Ill., Niles**—PLANT UNITS—Precision Castings Co., Reed Metalcraft Div., 3536 N. Knox St., Chicago, Zone 41, 60,000 sq. ft. first plant unit, on 17 acre site, **$1,700,000.**

Ind., New Albany—PLANT—Gunnison Homes Div., U. S. Steel Corp., 1 story steel plant, **$800,000.**

▲ **Ind., Richmond**—PLANT—International Harvester Co., 180 N. Michigan Ave., Chicago, Ill. rehabilitation of plant, **$1,245,000.**

Kan., Kansas City—GRAIN ELEVATOR—Farmers Elevator Co-operative Corp., Fairfax Dist., rein.-con. grain elevator. **$700,000.** Horner & Wyatt, Dwight Bldg., consult. engrs.

Kan., Neodesha—PLANT—Independent Plow Co., Neodesha, mfg. plant, **$300,000.** (Correction state). CD 1/8 under Neodesha, Mo.

Kan., Wichita—WAREHOUSE, etc.—The Fleming Co., Inc., 125 N. Mosely St., plans by Parr & Aderhold, Hales Bldg., Oklahoma City, Okla., warehouse and office, **$500,000.**

Md,. New Windsor—MANUFACTURING—Lincoln Mfg. Co., New Windsor, mfg. bldg. **$500,000.**

Mass., Worcester—WAREHOUSE—Merrill & Usher Co., 5 Arctic St., 100,000 sq. ft. warehouse and fabricating plant, Prescott St., **$750,000.**

Mich., Detroit—PLANT—S. Loewenstein & Son, 1945 Adelade St., meat packing plant, **$500,000,** Henschien Everds & Crombie, 59 E. Van Buren St., Chicago, Ill., consult. engrs. CD 10/11.

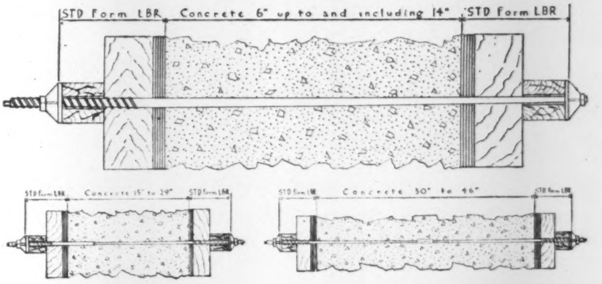
▲ **Mich., Trenton**—PLANT—Chrysler Corp., 341 Masachusetts St., Detroit, plans by Albert Kahn Associated Architects & Engineers, Inc., 345 New Center Bldg., Detroit, V-8 engines plant, **$10,000,000.** CD 1/3.

Minn., St. Paul—MILL PLANT—Twin City Milk Producers Assn., H. R. Leonard, gen. mgr., 2424 Terri-

CUT FORM CLAMP LABOR COSTS!

9,000 lb. TAPER-TYE CONCRETE FORM CLAMP

PATENT NO. 2365563



AVERAGE QUOTED SAVING—40%
This according to superintendents on many jobs. Write for verification of *savings* on actual jobs.

ELIMINATES EXPENSIVE MAKEUP!
One continuous tapered rod, adjustable 6" to 14" concrete. Also combinations up to 46" as illustrated above.

SAVE MONEY IN STRIPPING!
Remove true tapered rod from one side only!

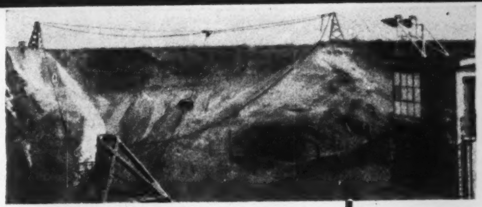
Write for descriptive literature!

H. J. KRUEPER Co.

535 SOUTH CLARENCE ST.
LOS ANGELES 33, CALIF.

Some Distributor Franchises Available

SAUERMAN FOR FAST MATERIAL HANDLING AT LOWEST COST



SAUERMAN Rapid-Shifting Scraper in the above picture is cutting into a hill and moving material to a fill 400 ft. away. The 4 cu. yd. machine digs and places 2,000 cu. yd. a day. Shifting of the path of the scraper is facilitated by means of an elevated tail bridle set up on the brow of the hill, from which a shifting cable runs to the front drum of the 3-drum scraper hoist.

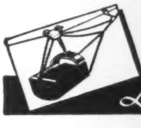
More Yardage—Less Labor

Important savings in man-power are effected on many excavating and material handling jobs by the use of Sauerman Power Drag Scrapers.

With one man at the controls, and with a relatively small expenditure of power, a Sauerman machine can dig, haul and automatically dump a large hourly yardage of any class of earth or bulk material.

From an economy standpoint, a Sauerman Scraper has no superior in its field of use. First cost is moderate; upkeep simple.

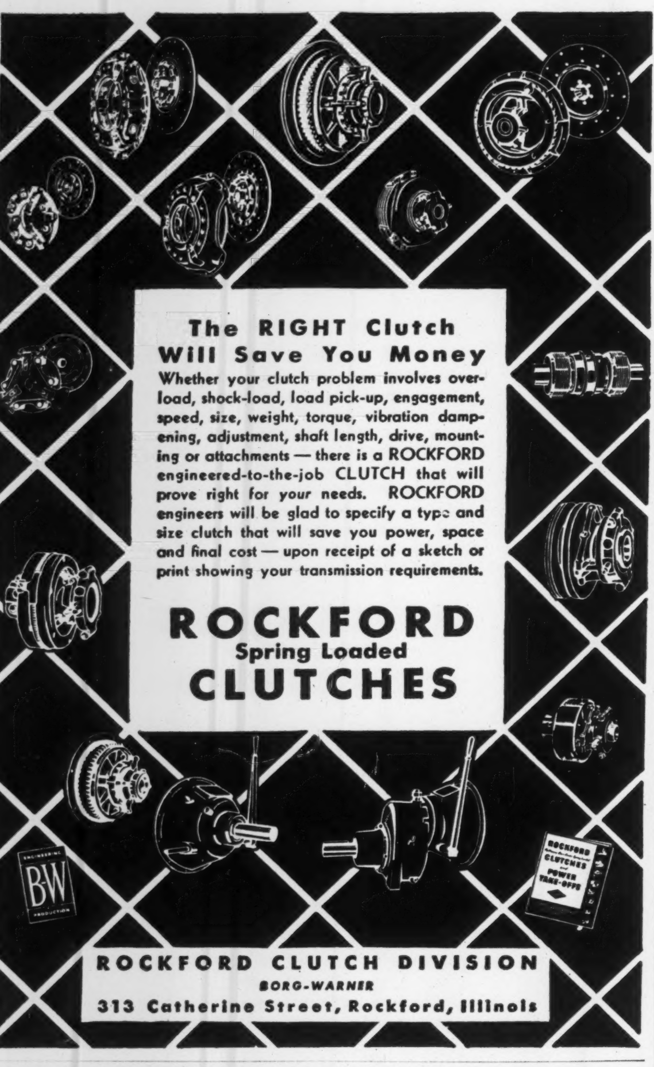
Write for new Scraper Catalog.



SAUERMAN BROS., INC.

532 S. CLINTON ST.
CHICAGO 7, ILL.

Long Range Material Handling Machines



The RIGHT Clutch Will Save You Money

Whether your clutch problem involves overload, shock-load, load pick-up, engagement, speed, size, weight, torque, vibration dampening, adjustment, shaft length, drive, mounting or attachments — there is a ROCKFORD engineered-to-the-job CLUTCH that will prove right for your needs. ROCKFORD engineers will be glad to specify a type and size clutch that will save you power, space and final cost — upon receipt of a sketch or print showing your transmission requirements.

ROCKFORD
Spring Loaded
CLUTCHES

ROCKFORD CLUTCH DIVISION
BORG-WARNER
313 Catherine Street, Rockford, Illinois

DRILLING CONTRACTORS

DIAMOND AND SHOT CORE BORINGS—DRY SAMPLE BORINGS

Foundation Testing for Bridges, Dams and All Heavy Structures

Also

Manufacturers of Diamond and Shot Core Drills, Accessories and Equipment

SPRAGUE & HENWOOD, Inc.
Scranton, Pa. Dept. E, U. S. A.

Since 1922

GUNITE
Shot with air

for CONSTRUCTION and MAINTENANCE

Experience That Counts
Write today for complete details of our services

INDIANA GUNITE & Construction Co., Inc.
228 NORTH ALABAMA STREET
INDIANAPOLIS 4
Indiana

torial Rd., plans by M. & G. Buetow, 1931 University Ave., 1 story, bsmnt., 170x400 ft. mill plant on Hy. 100, Brooklyn Center. **$980,000.**

Mo., Springfield—COLD STORAGE BLDG.—Producers Produce Co., 501 N. Main St., plans by Johnson & Robinett Associated Architects & Engineers, Landers Bldg., cold storage bldg., **$500,000.**

N. Y., New York—GARAGE—Equitable Life Assurance Society, 393 Seventh Ave., Zone 1, plans by Leonard Schultze & Assoc., 119 E. 40 St., Zone 17, parking garage on west side of Sedgwick Ave., north of Landing Rd. **$800,000.**

O., Cleveland—FACTORY—Ohio Crankshaft Co., 3800 Harvard Ave., plans by Wilbur Watson Assoc., engrs. and archts., 4614 Prospect St., 1 and 2 story, 150x300 ft., and 100x150x60 ft., L-shaped, steel, brick factory, 42 St. and Harvard Ave. **$500,000.**

▲ **O., Cleveland**—PLANT—Thompson Products, Inc., 2196 Clarkwood Rd., existing plant addn. mfg. automotive and aviation parts. **$13,000,000.**

▲ **O., Eastlake**—POWER STATION—Cleveland Electric Illuminating Co., Public Square, Cleveland, plans by Donald V. Galer, c/o owner, power station, 8 turbogenerators, 1,000x1,200 ft., 300 ft. high boiler stacks, steel frame, brick, masonry constr. **$100,000,000.** Emery W. Rhoads, 1596 Mars St., Cleveland, consult. engr. CD 12/30/48.

Pa., Eddystone — FACTORY — Baldwin-Lima-Hamilton Corp., Eddystone, factory alterations and modernization. Approx. **$500,000.**

▲ **Tex., Mount Vernon**—FACTORY—Owners, c/o Sam Harvey & H. St. Clair, Mount Vernon, glove factory. **$3,000,000.**

Tex., Needville—BOOSTER PLANT—United Gas Corp., 1120 Texas St., Houston, booster plant, 80 acre site. **$750,000.**

▲ **Wash., Moses Lake**—PLANT—United Concrete Pipe Corp., Baldwin Park, Calif., concrete pipe mfg. plant, **$1,000,000.**

▲ **Ont., Hamilton**—PLANT—National Sewer Pipe Co. Ltd., 320 Bay St., Toronto, mfg. plant, **$1,400,000.**

▲ **Ont., Hamilton**—DOCK AND STORAGE FACILITIES, etc.—The Steel Co. of Canada Ltd., Wilcox St., Hamilton, dock and storage facilities, addnl. coke ovens, blast furnace and new oven hearth furnace shop, consisting of four 250-ton capacity furnaces, Approx. **$45,000,000.**

Ont., Holstein—PLANT—Consolidated Sand & Gravel Ltd., Harboe Commission Bldg., Toronto, sand, gravel crushing, washing and screening plant, **$750,000.**

▲ **Que., Quebec City**—PLANT—Lignosol Chemicals Ltd., c/o Brigadier F. T. Atkinson, Quebec City, pulp, sulphite plant, **$1,000,000.**

▲ **Que., Quebec City**—FACTORY—Syndicate, c/o Armand Viau, City Hall, Quebec City, cement producing factory, **$5,000,000.**

▲ **Que., Sherbrooke**—PLANT—Bruck Mills, Ltd., Cowansville, plans by C. D. Goodman, 1818 Sherbrooke St. W., Montreal, 1 story, 142x403 ft., silk spinning unit addn., air-conditioned. Approx. **$1,000,000.**

UNCLASSIFIED

Kentucky—RURAL DISTRIBUTION LINES—Green River Rural Electric Co-operative Corp., Owensboro, 75 mi. rural distr. line, 5 substations, 27 mi. of 69kv transmission line and sys. imprvs., Daviess Co., **$890,000.**

▲ **Maryland**—RURAL DISTRIBUTION LINES—Southern Maryland Electric Co-operative, Hughesville, 425 mi. rural distr. lines, 53 mi. transmission lines, 7 substations, St. Mary's Co., **$2,350,000.** CD 11/26/48.

▲ **Minn., Alexandria** — TELEPHONE SYS. — Runestone Telephone Assn., Alexandria, 579 mi. of line for co-operative telephone sys., imprvs. of existing facilities in Grant, Douglas, Pope and Stevens Counties, **$1,028,000.**

▲ **North Carolina**—RURAL DISTRIBUTION LINES—French Broad Electric Membership Corp., Marshall, 355 mi. rural distr. lines, headquarters facilities and sys. imprvs., Madison Co. **$1,900,000.**

▲ **Oklahoma and Illinois**—PIPE LINE—Sinclair Pipe Line Co., Commerce Bldg., Houston, Tex., 700 mi. 22 in. crude oil pipe line, Drumright, Okla., to Chicago, Ill. **$40,000,000;** 6 pumping stations from Drumright, Okla., to Chicago, Ill. **$8,000,000.**

▲ **South Dakota** — RURAL DISTRIBUTION LINES — La Creek Electric Assn., Martin, rural distr. lines, Bennett Co. **$1,975,000.** REA allot. Scott Eng. Co., Watertown, consult. engr. CD 1/22/48.

▲ **Texas**—PIPE LINE—Gulf Oil Corp., Gulf Bldg., Houston, Tex., 300 mi. 26 in. welded joint crude oil pipe line from Colorado City to Wortham, $14,000,000; 160 mi. 24 in. welded joint crude oil pipe line from Wortham to Sour Lake, **$7,750,000** both in Mitchell Co. CD 9/9/47.

Tex., Longview—DIAL SYSTEM, TELEPHONE LINES, etc.—Southwestern Bell Telephone Co., Longview, dial system and storage bldg., **$325,000;** telephone lines and cables extens. **$350,000.**

▲ **Tex., Texas City**—DOCKS—Texas City Navigation Dist., Texas City, reconstructing docks. **$1,500,000.**

▲ **Virginia**—RURAL DISTRIBUTION LINES—Mecklenburg Electric Co-operatives, Chase City, 1,000 mi. rural distr. lines, Mecklenburg Co. **$2,430,000.** REA allot. Ernest Edwards, c/o owner, ch. engr. CD 5/27/48.

CONSTRUCTION REPORTS-Second Section

WATER SUPPLY

BIDS ASKED

N. Y., New York—B.A. 1/30—Board of Water Supply, 120 Wall St., Zone 7, Contr. 398, clearing, approx. 1,050 acres between Elevation 760 and an established clearing line, grubbing approx. 275 acres between Elevation 825 and the clearing line, in the upper portion of the Rondout Reservoir in preparation for storage of water, in the Towns of Wawarsing, Ulster Co. and Neversink, Sullivan Co. Plans deposit $5. CD 3/13/46.

Ga., Commerce—B.A. 1/31—City, 8 mi. 6- to 10-in. water mains and 200,000 gal. elevated steel water tank. Plans deposit $15. The Harwood Beebe Co., Montgomery Bldg., Spartansburg, S. C., engr.

Wyo., Worland—B.A. 2/1—City, water plant. $400,000. Black & Veatch, 4706 Broadway, Kansas City, Mo., engrs. CD 5/26.

† **D. C., Wash** — B.A. about 2/2 — U. S. Eng., First & Douglas Sts. N. W., Wash., 25, D. C., installing equipment for 6 new filters at Dalecarlia Filter Plant. CD 7/14/44.

CONTRACTS AWARDED

Central Constr. Co., Oshkosh, Wis. and **C & C Constr. Co.**, 2001 E. Pontiac St., Fort Wayne, Ind., Contract Awarded. **$722,000**. WW addn. and line extens., LA PORTE, IND. City, City Hall, La Porte, Ind. Awarded Dec. 15. CD 9/13.

SEWERS, WASTE DISPOSAL

BIDS ASKED

Mich., Petoskey—B.A. 2/5—City of Petoskey, Mayor Emery O. Nyman, City Hall, alterations and imprvs., to sewage treatment plant. Plans deposit $10. Burns & McDonnell, 95 and Troost Sts., Kansas City, Mo., engrs.

Pa., Phoenixville—Bids Asked—Charles Lachum Co., Phoenixville, industrial waste treatment plant.. Approx. $60,000. Albright & Friel Inc., 121 S. Broad St., Phila., archts.

Tex., Houston—Bids Asked—Frank M. Rentfrew, City Natl. Bank Bldg., sanitary sewers. $65,000.

Tex., San Antonio—Bids Asked—George W. Delevan Sr., W. H. Barnes, 801 Main St., sanitary and storm sewers. $60,000. W. F. Pickard, Babcock Rd., engr.

LOW BIDDERS

▲ **S. A. Healy & Co.**, 6955 S. South Chicago St., Chicago, Ill., Low Bidder, Approx. **$11,000,000**, est. $9,000,000, trunk and lateral sanitary sewers incl. Sect. 1, Trunk B, 8,140 lin. ft. rein.-con. box sewer from 8x10 ft., to 11x12½ ft. and 3,100 lin. ft. 72 in. and less, appurtenances, etc.; Sect. 2, Trunk A, 5,800 lin. ft. rein.-con. box 6x7 ft. to 9x10½ ft., etc.; Sect. 3,A, laterals 3,790 ft. 6 ft. 6 in. x 8 ft. 4 in., rein.-con. box 8x10½ ft. and 30,000 lin. ft. 8- to 78-in. sewers; Sect. 5C, trunk incl. 6,360 ft., rein.-con. box 6x7 ft., 7x9 ft., and 39,000 lin. ft. 8- to 78-in. sewers; Sect. 8, Edgemont and Oak Park and Lansdowne District, 180,000 lin. ft. overall 6- to 36-in. sewers, lift station, etc., EAST ST. LOUIS, ILL. City, John T. Conners, mayor, City Hall, Missouri Ave. at Main St., East St. Louis, Ill. Bids Jan. 10. CD 11/27.

▲ **Blackwell Corp.**, 200 St. Clair Ave., East St. Louis, Ill., Low Bidder, Approx. **$6,000,000**, est. $4,900,000 revised, trunk relief sewers, Proj. 18, Sects. A, B, and C, incl. Sect. A, Mississippi River to gate structures, 5,250 lin. ft. 12½x12½ ft. rein.-con. box and 470 lin. ft. 9x10½ ft. rein.-con. box; Sect. B from gate structure at Gay Ave. to 13 and Illinois Ave., 7,000 lin. ft. 12½x12½ ft. rein.-con. box and Sect. C 13 and Illinois Ave. to 20 and Illinois Ave. to junction with 42 in. station 72/10 incl., 4226 ft. 12½x12½ ft., rein.-con. box and 2,915 lin. ft. 11x12 ft., rein.-con. box sewers, together with appurtenances, etc. in each section, EAST ST. LOUIS, ILL. East Side Levee and Sanitary Dist., Dan Foley, pres., 2642 McCasland Ave., East St. Louis, Ill. Bids Jan. 10. CD 11/27.

▲ **A. Shuttle & Co.**, Inc., Jenkintown, Pa. Low Bidder, **$402,184**. Contr. 1, sewerage sys. and disposal plant piping; **$252,039**, Contr. 2, piping; **$342,721**, Contr. 3, piping*****Henkles & McCoy**, 6100 N. 20 St., Phila., Pa. **$111,000**, Contr. 5, plant, mechanical work*****Rice & Weidman**, Manheim Pike and Keller Ave., Lancaster, Pa., **$342,000**, Contr. 4, structural work for plant, LITITZ, Pa. Lititz Boro Sewage Auth., Lititz, Pa. Bids Jan. 10. CD 1/3.

CONTRACTS AWARDED

▲ **Ed. A. McCarthy & Son**, Clifton Ave., Cincinnati O., Contract Awarded, **$1,124,227**, sewage treatment plant, COLUMBUS, IND. Bd. P. Wks., City Hall, Columbus, Ind. Bids Dec. 15, awarded Jan. 8. CD 12/21, under LB.

▲ **Central Constr. Co.**, 200 E. Lee St., Louisville, Ky. Contract Awarded, **$756,230**, Roanoke River interceptor sewers, lower river line; **Wiley N. Jackson Co. Inc.** and **Neale Constr. Co. Inc.**, R.F.D. 4, Salem, **$848,896**, upper interceptor. ROANOKE, VA. City, Municipal Bldg., Roanoke, Va. Bids Nov. 20. CD 12/8, under LB.

BRIDGES

BIDS ASKED

STATE HIGHWAY LETTINGS

January 30
North Carolina
Ohio
Virginia
February 2
Missouri
North Dakota
February 7
Delaware
February 8
California

LOW BIDDERS

▲ **J. F. Beasley Constr. Co.**, Mercantile Bank Bldg., Dallas, Tex. Low Bidder. **$1,186,099**. Red River Bridge (superstructure) S.P. 83-03-07, F. A. Secondary Proj. S 147 (3), three 75 ft. I-beam spans, one 75 ft. I-beam span, five 360 ft. I-beam span, five 360 ft. high steel fired spans, one 75 ft. I-beam span, eleven 75 ft. I-beam spans 0.572 mi. at Miller's Bluff on Plain Dealing-Hosston Hy., State Rte. 109, Caddo and Bossier Parishes*****Massman Constr. Co.**, 20 W. 9 St., Kansas City, Mo., and **Kansas City Bridge Co.**, 926 Broadway, Kansas City, Mo., **$1,390,956**, Red River Bridge (substructure) S.P. 83-03-05, F. A. Secondary Proj. S 147, consisting 16 steel H pile column bents with rein.-con. caps, 6 rein. con. piers 0.572 mi., at Miller's Bluff on Plain Dealing-Hosston Hy., State Rte. 109, Caddo and Bossier Parishes*****W. R. Aldrich & Co.**, 2493 Baywood Ave., Baton Rouge, La., **$350,967**, bit. surf. tr. 1.513 mi. east approach to Lake Charles Bridge Hy., State Rte. C 2109, S.P. 3-30-07, Contr. II, F. A. Proj. UI 35 (20), Calcasieu Parish*****Cook Constr. Co.**, Hy. 80 W., Jackson, Miss., **$168,326**, concrete slab span bridges 0.166 mi. Pendleton-Many Hy. State Rte. 6, S.P. 34-02-16, F. A. Proj. F 150 (5), Sabine Parish; **$121,254**, grading, drainage structures 1.136 mi. east approach to Lake Charles Bridge, State Rte. C 2109, S.P. 3-30-07, Contr. I, F. A. Proj. UI 35 (20), Calcasieu Parish, LOUISIANA, State Hy. Dpt., Baton Rouge, La. Bids Jan. 10. CD 12/28 and 12/13.

▲ **Guy F. Atkinson**, Cascade Bldg., Portland, Ore. Low Bidder, **$1,988,572**; est. $2,400,000, 1,468 ft. bridge across Columbia River, near The Dalles, Wasco Co., OREGON. Wasco Co., Court House, The Dalles, Ore., Bids Jan. 11. CD 1/3.

CONTRACTS AWARDED

▲ **Industrial Contg. Co.**, 3050 Fourth Ave. S., Minneapolis, Minn. Contract Awarded. **$2,108,526**, bridge over Missouri River at north side of OMAHA, NEB. North Omaha Bridge Assn., 2912 Ames Ave., Omaha, Neb. Bids Dec. 19. CD 12/27, under LB.

STREETS AND ROADS

BIDS ASKED

STATE HIGHWAY LETTINGS

January 30
North Carolina
Ohio
Virginia
January 31
Louisiana
February 2
Missouri
North Dakota

N. Y., Brooklyn—B.A. 2/1—President Brooklyn Boro, Boro Hall, Zone 2, grading paving construct walls, bridge and utilities, incl. sewers, drainage, water mains, lighting, Columbia St. from Amity St. to Atlantic Ave.; Columbia Pl. to State St., along Atlantic Ave. from Hicks to Furman Sts.; Furman St. to State St. and spanning Atlantic Ave. etc. on Brooklyn-Queens Connecting Hy. Contr. 3B. Plans deposit $10.

† **Virginia**—B.A. 2/1—Bureau Pub. Roads, Dpt. Commerce, 1440 Columbia Pike, Arlington,

Bedford and Botetourt Counties—40,500 tons Type H-1, asph. pavement 20.119 mi. Proj. 1K6L5, Blue Ridge Parkway. Plans deposit $10.

CONTRACTS AWARDED

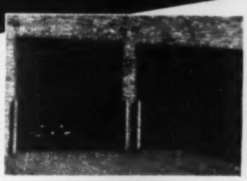
▲ **Granite Constr. Co.**, Box 900, Watsonville, Calif. Contract Awarded, **$1,032,455**, plant mix surf. 5.5 mi., two rein.-con. bridges between Ignacio and Forbes Overhead, Marin Co., CALIFORNIA State Div. Hys., Sacramento Calif. Bids Dec. 20, Awarded Jan. 10. CD 12/28, under LB.

▲ **Missouri Valley Constr. Co.**, 1029 Omaha Natl. Bank Bldg., Omaha, Neb. Contract Awarded, **$1,102,745**, grading, paving, guard rail, 796-A-Alma south, Harlan Co.; **Northwestern Eng. Co.**, Rapid City, S. D., **$522,644**, grading, gravel, paving, culverts, concrete asph. U-69, 103, Gering-Scottsbluff, Scottsbluff Co., NEBRASKA. State Dept. Roads & Irrigation, Lincoln, Neb. Bids Dec. 21. CD 1/3, under LB.

Berke Bros., 7923 N.E Halsey St., Portland, Ore. Contract Awarded. **$509,302**. grading, topping 17.1 mi. Wilson Creek-Boardman Sect., Columbia River Hy., Morrow and Gilliam Counties OREGON. State Hy. Comn., State Office Bldg., Salem. Bids Nov. 10. Awarded Jan. 8. CD 11/16, under LB.

▲ **C. W. Good, Inc., 726 Columbia Ave.**, Box 1053, Lancaster, Pa. Contract Awarded. **$1,224,081**. construct divided hy. consisting c. conc. pavement 24 ft. wide on each side of earth divisor area 16 ft. wide and incl. one concrete deck plate girder bridge, 3 concrete deck I-beam bridges, grading 84 ft. to 94

Fit the closure to the opening with KINNEAR Rolling Doors



ANY SIZE FOR ANY BUILDING

You can be sure of matching every door need with Kinnear Rolling Doors. These interlocking steel-slat doors of coiling upward action are built to any specified opening size. Write for catalog.

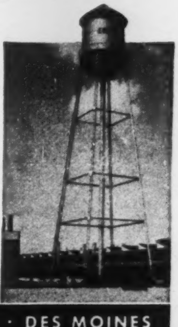
The KINNEAR Manufacturing Co.
Factories: 1820-40 Fields Ave., Columbus 16, Ohio
1742 Yosemite Ave., San Francisco 24, Calif.
Offices and Agents in Principal Cities

KINNEAR ROLLING DOORS

PITTSBURGH · DES MOINES

ELEVATED STEEL TANKS

We design, fabricate and erect Elevated Steel Tanks for every industrial purpose—in all types and capacities. *Write for our descriptive Elevated Tank Bulletin.*



PITTSBURGH · DES MOINES STEEL COMPANY

Pittsburgh, Pa. [illegible] 3414 Neville Island
Des Moines, Ia. 915 Tuttle Street
Santa Clara, [illegible] [illegible] Alviso Road

When You Call For Any Industrial Requirement
· In Piping

ALBERT
"Rings the Bell"

***SPEEDLAY PIPE SYSTEM*—completely packaged for fast-laying temporary and semi-permanent lines for water, compressed air and other services.**

PILING—Sheet Piling—light weight • Tubular—all sizes

PILE SHELLS—Spiral Welded, Hel-Cor, Riveted, CAISSONS

PILE FITTINGS—All types and sizes for steel and wood, cast steel and iron points. Plates and shoes cast steel and malleable iron sleeves.

CULVERTS—Corrugated, Spiral or Riveted Steel.

VALVES AND FITTINGS—Tube turns, Dresser, Vitaulic, cast iron or steel, forged steel, special alloys, water main.

ALBERT
PIPE SUPPLY CO., INC.
Berry at North 13th St.
Brooklyn 11, N. Y.
Phone EVergreen 7-8100

SPECIALISTS IN PRE-FABRICATED PIPING

Three Long Blasts!

. . . And this bridge will open. But upon your first call, The Earle Gear and Machine Company will be ready to serve you with all of their experience, skill and facilities. Famous for efficient and unfailing bridge operating machinery, Earle Gear can also provide—promptly and accurately—almost any size and type of gear. Earle engineers are always available and pleased to assist you. In many cases, our accumulated knowledge and experience can materially *lower* the costs . . . or *increase* the efficiency of your machines. Write for information, catalogs or service. THE EARLE GEAR & MACHINE COMPANY, 4717 Stenton Avenue, Philadelphia 44, Pa.

It's good business to do business with EARLE

EARLE GEARS

ft. wide, total length 11,240 ft. L. R. 771 (2). T.R.U.S. 22, from point north of the city of Allentown westerly, a portion of Route 22 Allentown by-pass, Lehigh Co., PENNSYLVANIA, State Hy. and bridge Auth., 506 N. Office Bldg., Harrisburg, Pa. Bids Dec. 27, awarded Jan. 10. CD 1/3, under LB.

▲ **Ralph Myers Contg. Corp.**, Salem, Ind. Contract Awarded. **$1,068,333**, c. conc. pavement 22 ft. 33 ft. 46 ft. and variable in width, incl. 3 rein.-con. structures; wid'n. existing pavement with c. conc. base and crushed aggregate base 3 ft. and 3 ft. 4 in. wide on each side, bit. surf. new base and existing pavement 22 ft. wide, exten. rein.-con. bridge and construct concrete deck I-beam bridge, Total length 14,301 ft. L. R. 54 (R-7). T. R. 80, from point in Clymer Boro, westerly, Indiana Co., PENNSYLVANIA. State Hy. Dpt., Harrisburg, Pa. Bids Dec. 27, Awarded Jan. 15. CD 1/3, under LB.

▲ **Central Pennsylvania Quarry, Stripping & Constr. Co.**, 270 S. Pine St., Hazelton, Pa. Contract Awarded. **$1,313,208**, c. conc. pavement 24 ft. wide, c. conc. wid'n. existing pavement 6 and 14 ft. wide; crushed aggregate base with bit. surf. 24 ft. and variable in width; construct continuous concrete deck girder beam bridge and rein.-con. bridge, bit. surf. existing pavement 18 ft. wide and variable 14,489 ft. L. R. 06150 (1); 06038 (2), Berks Co., PENNSYLVANIA. State Hy. Dpt., Harrisburg, Pa. Bids Dec. 28, Awarded Jan. 15. CD 1/3, under LB.

EARTHWORK, WATERWAYS

BID ASKED

† **Oklahoma**—B.A. 2/1—U. S. Eng., P. O. Box 61, Tulsa, riprap and bank protection downstream from Denison power house, Byran Co., Inv. CIVENG 34-066-51-26. $75,000. CD 7/24.

† **Texas**—B.A. 2/2—U. S. Eng., Box 61, Tulsa, Okla., construct right bank protection downstream from powerhouse, Denison Dam Area. Inv. No. CIVENG 066-51-26. $200,000.

† **Montana**—B. A. 2/6—Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo., hollow metal doors and fire doors for Hungry Horse Dam and power plant, Coram, Hungry Horse Proj. Spec. DS 3274, L. N. McClellan, Bldg. 1A, Denver Federal Center, Denver, Colo., ch. engr.

† **Oregon**—B.A. 2/6—U. S. Eng., Pittock Block, Portland, exten. north guide wall at The Dalles Celilo Canal, Wasco Co., CIVENG 35-026-51-178.

LOW BIDDERS

▲ † **Bauer-Smith Dredging Co.**, Port Lavaca, Tex. Low Bidder. **$1,421,464.** Dredging Intracoastal Waterway, Colorado River to Matagorda Bay, Inv. No. CIVENG 41-243-51-51, TEXAS. U. S. Eng., 707 Santa Fe Bldg., Galveston, Tex. Bids Jan. 10.

CONTRACTS AWARDED

▲† **Robert Lee, Inc.**, Manning S. C., Contract Awarded, **$1,354,510**, clearing reservoir, Group IV, Clark Hill Dam, GEORGIA—SOUTH CAROLINA. U. S. Eng., Post Office Bldg., Savannah, Ga. Bids Jan. 11. CD 12/20.

AIRPORTS

BIDS ASKED

† **Fla., Mayport**—AIRPORT FACILITIES—B.A. 2/2—Dist. P. Wks. Office, P.O. Box 365, Bldg. 12, Naval Base, Charleston, S. C., airfield facilities, outlying field, Spec. No. 25135. Plans deposit $10. CD 10/20, under Unclassified.

† **Fla., Jacksonville**—GRADING, etc.—B.A. 2/6—Charleston Naval Base, Charleston, S. C., grading, drainage facilities and constr. new taxiways and paving outlying Airfield, Mayport Carrier Base, NOY 22492, Spec. 25135. Plans deposit $10.

LOW BIDDERS

† **E. H. Marhoefer Jr.**, 505 N. LaSalle St., Chicago 10, Ill. Low Bidder. **$565,765.** 10 bldgs. at Selfridge Field for Air Force, MOUNT CLEMENS, MICH. U. S. Eng., 520 Merchandise Mart, Chicago 54, Ill. CD 2/20/50.

Wm. J. Goldfield Constr. Co., McAlester, Okla. Low Bidder, **$509,905**, lighting sys. and administration bldg., municipal airport, McALESTER, OKLA., City, McAlester, Okla. Bids Jan. 8. CD 12/27.

LATIN AMERICA

▲† **Frederick A. Snare Corp.**, 233 Broadway, New York, N. Y. Contract Awarded. Approx. **$5,000,000**. Rehabilitation of Nicaro Nickel Plant on Lengua de Pajaro Peninsula, Oriente Province, CUBA. General Services Admin., General Services Bldg., F St. between 18 and 19 Sts. N. W., Wash. D. C. Mining Equipment Corp., 1270 6 Ave., New York, N. Y., U. S. A., engineers and operators.

▲ **Fiat, San Juan de Letran**, 9, Mexico City. Contract Awarded **$3,000,000.** Shipyard for the building of ten 6,000-ton oil tankers, VERA CRUZ, MEXICO. Petroleos Mexicanos, Juarez, 104, Mexico City, Mexico. Awarded Jan. 13. CD 3/30.

PUBLIC BUILDINGS

BIDS ASKED

N. Y., Liverpool—SCHOOL—B.A. 1/29—Bd. Educ., C S D No. 1, Liverpool, school addn. Plans deposit

$25. Sargent, Webster, Crenshaw & Folley, 2112 Erie Blvd. E., Syracuse, archts.

† **Colorado**—TURBINE—B.A. 1/30—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, furnishing hydraulic turbine for Flatiron Power Plant, Colorado-Big Thompson Proj. Spec. DS-3251. Extended date. CD 12/8.

Ga., Rome—LABORATORY—B.A. 1/30—Georgia Dpt. Health, State Office Bldg., Atlanta, laboratory bldg. Proj. GA-72 at Battey State Hospital. Plans deposit $20.

Minn., Taylors Falls—SCHOOL—B.A. 1/30—Bd. Educ., I. J. Olson, clk., 3 story, 113x216 ft. elementary and high school, $410,000. Plans deposit $15. W. M. Ingemann and M. V. Bergstedt, 345 Minnesota St., St. Paul, archts. CD 2/2/46.

Neb., Albion—SCHOOL—B.A. 1/30—Bd. Educ., Albion, school. $355,000. Davis & Wilson, Stuart Bldg., Lincoln, archts. CD 6/19.

† **N. Y., White Plains**—POST OFFICE—B.A. 1/30—Pub. Bldgs. Service, 250 Hudson St., New York, Zone 13, misc. repairs to U. S. Post Office.

O., Westerville — SCHOOL — B.A. 1/30 — Bd. Educ., M. R. Morris, supt., Westerville, 1 story elementary school 9 acre tract, Summit St. $480,000. CD 5/22.

Pennsylvania — MAINTENANCE BLDGS. — B.A. 1/30 — Pennsylvania Turnpike Comn., 11 N. 4 St., Harrisburg, 2 maintenance bldgs. on Western Extens. of Turnpike, Allegheny and Beaver Counties. Plans deposit $10. R. B. Stone, c/o owner, ch. eng.

Pa., McKeesport—SCHOOL—B.A. 1/30—North Versailles Twp. Auth., 1013½ Argo St., East McKeesport, 1 and 2 story, 270x349 ft. brick, block Junior High School, near here. $850,000. Plans deposit $45. Walter E. Schardt, 6100 Penn Ave., Pittsburgh, archt.

† **S.C., Charleston**—CONVERTING BLDG.—B.A. 1/30—Dpt. of Navy, Charleston Naval Base, Charleston, converting and rehabilitating Bldg. No. 29 at the Minecraft Base, Charleston Naval Base. Noy 23950. Spec. 26274. Plans deposit $10.

Ont., Sudbury—LIBRARY—B.A. 1/31—Secy. Public Library Bldg., Sudbury, 3 story, 112x141 ft., rein.-con., steel, brick, stone Public Library, Kent and MacKenzie Sts. Approx. $300,000. L. G. Bridgman, Royal Bank Bldg., London, archt. CD 12/2/49.

Nev., Sparks—HIGH SCHOOL—B.A. in February—Bd. Educ., Sparks, high school and gymnasium. $700,000. DeLongchamps & O'Brien, 160 Chestnut St., Reno, archts. CD 6/6/47.

† **Mass., Newburyport**—MOTOR VEHICLE STORAGE—B.A. On Or About 2/1—U. S. Eng., P. O. Box 2316, Boston, Zone 7, motor vehicle storage bldg., Low St. approx. 500 ft. southeast of Hale St. for Massachusetts National Guard, NG 19-093-51-3.

▲ **Ala., Florence**—HOUSING—B.A. About 2/1—Florence Housing Auth., Florence, 175 housing units, $1,500,000. Turner & Northington, Florence, archts. CD 11/16.

Miss., Jackson—MUNICIPAL COURT, etc.—B.A. About 2/1—City, municipal courts-police-jail. $515,000, James T. Canizaro, Deposit Guaranty Bank Bldg., archt. CD 8/11.

† **Colorado**—DISPATCHERS BLDG.—B.A. 2/1—Bureau Reclamation, Dpt. Interior, Loveland, Colo., constr. system dispatchers bldg. at Flatiron, Colorado-Big Thompson Proj., about 8 mi. west of Campion, Spec. DC-3272.

Md., College Park—PHYSICS—B.A. 2/1—State, Dpt. P. Imprvts., 506 Park Ave., Baltimore, Zone 1, 4 story, concrete, steel, brick physics bldg. at University of Maryland, $800,000. Plans deposit $50. Hall, Border & Donaldson, 2517 St. Paul St., Baltimore archts. Henry Adams, Inc., 2315 St. Paul St., Baltimore, mech. engr. L. P. Kooken Co., 2017 Maryland Ave., Baltimore, consult. engrs. CD 10/6.

N. J., New Brunswick—ADMINISTRATION—B.A. 2/1—New Jersey Turnpike Auth., 65 Prospect St., Trenton, Contr. 69, administration bldg. 2 mi. east of here, Middlesex Co. Alfred Fellheimer-Wagner, 155 E. 42 St., New York, N. Y., archts. CD 7/13/49, under New Jersey, Streets and Roads.

† **N. M., Los Alamos**—BUILDINGS, etc.—B.A. 2/1—U.S. Atomic Energy Comn., Los Alamos, buildings and related service, rein.-con. type, TA-22-C, Inv. 291-51-51. $300,000-$400,000. Extended date. Black & Veatch, c/o C. A. Slocumb, Los Alamos, engrs. CD 12/13.

● **N. Y., Port Washington**—SCHOOLS—B.A. 2/1—Bd. Educ., Union Free School Dist. 4, Port Washington, 3 schools. $579,000. Plans deposit $50. Bids 10/5 rejected. Eggers & Higgins, 100 E. 42 St., New York, Zone 17, archts.

▲ **Tex., Galveston**—SCHOOLS—B.A. 2/1—Galveston Independent School Dist., Galveston, Senior High School for Whites, $2,350,000; Senior High School for Negroes, $1,650,000. Bid date changed. R. R. Rapp, Guaranty Bldg., archt. Preston M. Geren, 905 N. P. Anderson Bldg., Fort Worth, assoc. archt. CD 12/28.

▲ **Wash., Tacoma**—LIBRARY—B.A. 2/1—Tacoma Pub. Library, 1120 S. Tacoma Ave., 2 story, bsmnt., 120x300 ft., rein.-con. library addn. $1,000,000. Plans deposit $50. S. E. Nelsen, 1114 Court F. St., archt. CD 6/6/49

Wis., La Crosse—ADMINISTRATION—B.A. 2/1—City, 2 story bsmnt., 53x96 ft., administration bldg. Plans deposit $25. Boyum, Schubert & Sorenson, LaCrosse, Wis., archts. CD 3/1/43.

† **N. M., Los Alamos**—BUILDING—B.A. 2/2—U. S. Atomic Energy Comn., Los Alamos, concrete bldgs., facilities, Groups 137 and 139, Area TA-16, Proj. H. $300,000. Plans deposit $50.

† **Ga., Fort Benning**—HOSPITAL—B.A. 2/5—U. S. Eng., P. O. Box 1169, Mobile, 7, Ala., conversion

"We Specified VIBER Vibrators Exclusively on this Big Job"

20 YEARS EXPERIENCE MAKING ONLY CONCRETE VIBRATORS

Viber Company has spent over twenty years in research, development and field tests on concrete vibrators. This concentration has produced dependable vibration equipment

ACCEPTED by ENGINEERS and CONTRACTORS the WORLD OVER

Literature will be furnished immediately upon request.

VIBER COMPANY
Concrete Vibrators Since 1931

726 South Flower Street
Dept. 20 Burbank, California

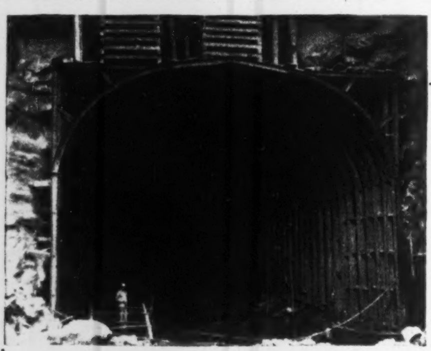
soil sampling made easy!

Acker Soil Sampling Kit gives you accurate sub-surface information
Quickly—
Easily—
Inexpensively

Write today for prices and bulletin 26 ENR

ACKER DRILL CO., INC., SCRANTON 3, PA.

Over 30 years of experience in the manufacture and development of drilling equipment



Save time and costs on your next
TUNNEL
job with

COMMERCIAL STEEL SUPPORTS

• Commercial Steel Beams are designed for easy — rapid — safe construction in all kinds of tunnel projects. The installation shows how these beams were used to good advantage in construction of a water diversion tunnel. Note the large working area — simplicity of installation — and safety afforded workmen. All of these features make for rapid construction and low costs. These easy-to-install supports are available in every size and radii for every job.

Call a COMMERCIAL *Engineer* on the adaptability and low cost of installation on your next tunnel project.

THE COMMERCIAL SHEARING and STAMPING CO.
YOUNGSTOWN, OHIO

and rehabilitation of 55 hospital buildings. ENG 01-076-51-134. Plans deposit $25. CD 12/29.

Ind., Evansville—ORPHAN HOME—B.A. 2/5—Bd. Comrs., Vanderburgh Co., O. H. Meyer, aud., Court House, orphans home, 2 addnl. bldgs. and supts. residence 1 bldg., 1 story bsmnt., 157x180 ft., 1 bldg. 2 story, bsmnt., 51x52 ft., brick, stone, rein.-con. $400,000. Edwin C. Berendes, 208 N.W. 3 St., archt.

Ky., Henderson — SCHOOL—B.A. 2/5 — Henderson Co., High School. $650,000. Plans deposit $50. Extended date. Geo. F. Mahoney, Columbian Mutual Tower Bldg., Memphis, Tenn., archt. CD 12/20.

† **Arizona**—SUB-STATION—B.A. 2/6—Bureau Reclamation, Dpt. Interior, Phoenix, Ariz., constr. Maricopa sub-station Davis Dam Proj., Spec. 300C-9 L. N. McClellan, Bldg. 1-A, Denver Federal Center, Denver, Colo., ch. engr.

▲ **Tex., Dallas**—HOUSING—B.A. 2/6—Dallas Housing Auth., City Hall, fifty 2 story, brick bldgs. for 300 apartment units, $2,250,000. Plans deposit $100. Walter W. Cook & Assoc., 9003 Denton Dr., archts. CD 12/2/49.

Tex., Temple—SCHOOL—B.A. 2/6—Temple Independent School Dist., Temple, Junior-Senior High School for Negroes. $475,000. Plans deposit $25. H. B. Wells, 4215 Live Oak St., Dallas, engr. Buttrill & Turley, Box 45, archts. CD 9/13.

Tex., Prairie View—ENGINEERING BLDG.—B.A. 2/7—Prairie View College, Prairie View, engineering bldg. $300,000. Plans deposit $45. Norton & Mayfield, Box 1169, Bryan, archts. CD 12/14.

▲ **Calif., Oakland**—JUVENILE HALL—B.A. 2/8—Alameda Co., Court House, Alameda County Juvenile Hall at Fairmount Hospital, 150 Ave. and Foothills Blvd. $2,200,000. Plans deposit $125. CD 2/19/47.

LOW BIDDERS

▲ **Newstrom-Davis & Co.**, 2000 W. 8 Ave., Denver, Colo. Low Bidder. **$1,897,700**, public housing, incl. 39 one and two story building for housing and 1 maintenance bldg., incl. 200 units, DENVER, COLO. Denver Housing Auth., 1449 Navajo St., Denver, Colo. Bids Jan. 9.

▲ **Alport-Carlo Constr. Co.**, Title Guaranty Bldg., St. Louis 1, Mo. Low Bidder. **$1,708,999.** rehabilitation bldgs. for shop facilities, offices, classrooms, warehouses at 8900 South Broadway for St. Louis Army Medical Depot, ST. LOUIS, MO. U. S. Eng., 601 Davidson Bldg., Kansas City 6, Mo. Russell & Axon, 408 Olive St., St. Louis 2, Mo., archts. Bids Jan. 10. CD 6/14/50.

▲ **William E. O'Neil Constr. Co.**, 200 Madison Ave., Syracuse, N. Y. Low Bidder. **$818,825**, general constr. modern power and heating plant, Utica State Hospital, UTICA, N. Y.; **Interboro Co.**, 235 E. 34 St., New York, N. Y., **$706,720**, heating. Bureau Contracts & Accounts, Albany, N. Y. Bids Jan. 10.

▲ **Earl L. Cump**, Chambersburg, Pa. Low Bidder, **$1,232,065**, est. $1,200,000. general constr. two five-unit cottage and one double cottage type bldgs. at Pennsylvania Soldiers Orphan Home, SCOTLAND, PA. General State Auth., 18 and Herr Sts., Harrisburg, Pa. Bids Jan. 17. CD 12/29.

▲ **Combustion-Engineering-Superheater, Inc.**, M. Esperson Bldg., Houston, Tex. Low Bidder, **$466,364**, steam generating units***Westinghouse Electric Corp., 1314 Texas St., Houston, Tex., **$489,100**, 15,000 kw steam-drive turbo-generator; **$196,370**, switchgear unit (for power plant project) BROWNSVILLE, TEX. City, Brownsville. Bids Dec. 28. CD 12/19.

▲† **Patti-MacDonald Constr. Co.**, 1340 Admiral Blvd., Kansas City, Mo. Low Bidder, **$9,399,900**, est. $11,603,168. central heating and power plant, Inv. No. S95-507-51-17, FORT RICHARDSON, ALASKA, U. S. Eng. (APO 942, c/o PM, Seattle, Wash.) Anchorage, Alaska. Bids Jan. 10. CD 12/5.

CONTRACTS AWARDED

▲† **Kirchhof Constr. Co.**, 700 Lawrence St., Denver, Colo. Contract Awarded. **$2,000,000**, remodeling Air Force Finance Center, 3800 York St., DENVER, COLO. General Services Admin., Bldg. 1C, Denver Federal Center, Denver, Colo.

▲ **J. F. Pritchard & Co.**, 908 Grand Ave., Kansas City, Mo. Contract Awarded, Approx. **$3,000,000.** steam electric plant, KEY WEST, FLA. City, Key West, Fla. Bids Dec. 18. CD 12/7.

▲ **Byck-Worrell Constr. Co.**, 318 E. Bay St., Savannah, Ga., Contract Awarded, **$1,079,847**, housing units, MOULTRIE, GA. Moultrie Housing Auth., Moultrie. Bids Dec. 14. CD 12/20, under LB.

▲ **John Felmley Co.**, Peoples Bank Bldg., Bloomington, Ill. Contract Awarded. **$2,619,045**, 300 unit, 1 and 2 story housing, DANVILLE, ILL. Danville Housing Auth., Danville, Ill. Bids Dec. 26, awarded Jan. 8. CD 1/4, under LB.

Mayfair Constr. Co., 566 N. Kedzie St., Chicago, 45, Ill., Contract Awarded, **$515,000**. 35,000 sq. ft. armory, paving, parking and landscaping, SULLIVAN, ILL. Armory Bd. of Illinois, 160 N. La Salle St., Chicago, Zone 1. Bids Nov. 29.

▲ **Wildes Constr. Co.**, Waterloo, Ia. Contract Awarded, **$1,005,605**. general constr. Logan Ave. Junior High School, WATERLOO, IA. Independent School Dist., Waterloo, Ia. Bids Jan. 10. CD 12/18.

▲ **Davis Constr. Co.**, 320 W. 24 St., Baltimore, Md. Contract Awarded. **$1,666,000**. 2 wings 40x550 ft., connected 25x80 ft. and 60x80 ft. corridors, plus 2 back wings 60x138 ft., steel, limestone, masonry admission bldg. at Spring Grove State Hospital, CATONSVILLE, MD. State, Dpt. P. Imprvts., 506 Park Ave., Baltimore 2, Md. Bids Dec. 21, awarded Jan. 8. CD 12/27, under LB.

▲ **Frank W. Bogert,** 324 Railroad Ave., Hackensack, N. J. Contract Awarded. **$1,194,220,** general constr. 144 apartment, Oratam Court Housing, Newman St. and Railroad Ave., HACKENSACK, N. J. Hackensack Housing Auth., 166 Main St., Hackensack, N. J. Bids Dec. 13. CD 12/19, under LB.

▲ **Fowler-Jones Constr. Co.,** Reynolds Bldg., Winston-Salem, N. C. Contract Awarded. **$1,379,300.** 178 dwelling units and commercial bldg., WINSTON-SALEM, N. C. Winston-Salem Housing Auth., 1205 Reynolds Bldg., Winston-Salem, N. C. Bids Dec. 20. CD 12/29, under LB.

▲ **Goode Constr. Co.,** Builders Bldg., Charlotte, N. C. Contract Awarded. **$2,780,115.** 300-low rent housing units for White occupants, ROANOKE, VA. Roanoke Redevelopment & Housing Auth., 401 Luck Ave. S.W., Roanoke, Va. Bids Dec. 5. CD 12/11, under LB.

▲† **L. E. Baldwin, Inc. & Assocs.,** 1103 N. 36 St., Seattle 3, Wash., Contract Awarded, **$3,298,700,** 300 housing units, RICHLAND, WASH. U. S. Atomic Energy Comn., Richland, Wash. Bids Dec. 4. CD 12/8, under LB.

▲† **Sound Constr. Co.,** 1300 Aloha St., Seattle, Wash. Contract Awarded. **$1,154,203.** 2 story, 122x217 ft., rein.-con. steel laboratory, RICHLAND, WASH. General Electric Co. prime contractor to U. S. Atomic Energy Comn., for operation of Hanford Works, Richland, Wash. Bids Nov. 8. CD 11/22, under LB.

B. F. Parrott Co., P. O. Box 1791, Roanoke, Va., Contract Awarded, **$652,500,** Western Hospital addns., alteration, CHARLESTON, W. VA. State Bd. Control, Charleston. CD 12/13, under LB.

COMMERCIAL BUILDINGS

BIDS ASKED

Ont., Waterloo—OFFICE—B.A. 1/31—Jenkins & Wright, archts., 200 Zellar Bldg., 49 King St. E., Kitchener, 3 story, 150x170 ft., rein.-con., stone, brick, steel, concrete head office annex for Mutual Life Assurance Co. of Canada, 227 King St. S. Approx. $600,000.

Que., Iberville—CHURCH—B.A. 1/31—Rev. O. Beaugard, Iberville, 54x150 ft., concrete stone church for Roman Catholic Parish of St. Noel Chabanel, Iberville, $300,000. Morin, & Cing Mars, 84 W. Notre Dame St., Montreal, archts. CD 11/16.

N. C., Morganton—CHURCH—B.A. About 2/1—First Methodist Church, Morganton, church. $375,000. Barber & McMurray, 2505 Kingston Pike, Knoxville, Tenn., archts. CD 11/13/45.

Pa., Greensburg—HOSPITAL—B.A. 2/1—Westmoreland Hospital, Greensburg, 3 and 7 story bsmnt., brick, steel frame hospital addn. $938,822. Plans deposit $50. James H. Ritchie & Assoc., 83 Newberry St., Boston, Mass., archts. CD 9/30/49.

Ont., Kingston—HOSPITAL—B.A. 2/2—St. Mary's of the Lake Hospital, King St., 3 story, bsmnt., L-shaped, 50x180 ft. 125-bed, steel, concrete, stone faced hospital addn. Approx. $300,000. Plans deposit $25. L. V. Gallaher, 155 Brock St., archt. CD 9/18.

Tex., Midland — CHURCH — B.A. 2/6 — First Baptist Church, Midland, 1,500 seating church and auditorium. $750,000. Mark Lemmon, 1210½ Main St., Dallas, archt. CD 7/27.

Fla., St. Petersburg—CHURCH—Bids Asked—First Methodist Church, c/o Archie G. Parish & Robert B. Crowe, archts., 213 Hall Bldg., church. Bids 10/25, rejected. CD 11/1, under LB.

Neb., Sidney—HOUSING—Bids Asked—U.S. Eng., Missouri River Div., P.O. Box 1216, Farm Credit Bldg., 206 S. 19 St., Omaha 1, Neb., construct, manage and finance 100 housing units, Sioux Ordnance Depot.

Pa., Phila.—OFFICE—Bids Asked—Bell Telephone Co. of Penna., 1401 Arch St., office addn. Approx. $300,000. The Pepper Associates, 225 S. 15 St., archts. CD 10/27.

Tenn., Memphis—LIBRARY—Bids Asked—Southwestern University, c/o Walk C. Jones-Walk C. Jones, Jr., 1215 Poplar St., 2 story, steel, concrete library. $350,000. CD 7/17.

Tex., Dallas—SHOPPING CENTER—Bids Asked—Parksdale Heights Realty Co., Lawnview and Scyene Rd., masonry, shopping center units, concrete pier and grade beam fdn., Scyene Rd. and Weatherford St. $600,000. J. N. McCammon, 212 S. St. Paul St., archt.

Tex., McAllen—MERCANTILE—Bids Asked—Sears Roebuck & Co., 4207 Main St., Houston, 2 story bsmnt. mercantile. $650,000. George L. Dahl, 1920½ Main St., Dallas, consult. archt. Cowell & Neuhaus, 2303 La Branch St., Houston, supv. archts. CD 1/8.

SOON LETS CONTRACT

Kan., Winfield — ADMISSION — Southwestern College, Winfield, soon lets contract admission bldg. $500,000. W. I. Fisher, Central Bldg., Wichita, archt. CD 11/10.

▲ **Md., Baltimore**—HALL—Johns Hopkins University, Charles and 34 Sts., Zone 18, soon lets contract 2 story, bsmnt., brick, steel, limestone, steel Alfred Jenkins Shriver Lecture Hall on campus, 2 connecting bldgs. one for auditorium and one for admin. offices, lecture hall, $1,395,680, Buchler Fenhagen, Meyers & Ayers, Federal Land Bank Bldg., archts., Jas.

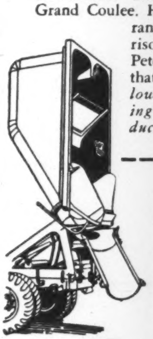
9 DUMPCRETES
at GRAND COULEE DAM

Morrison-Knudsen, Peter Kiewit Place Concrete at Lower Cost

Dumpcretes were picked to haul and place 160,000 yards of concrete for the new East Powerhouse and Pumping Station at Grand Coulee. Hauls to scattered pours range up to 1½ miles. Morrison-Knudsen Co., Inc. and Peter Kiewit Sons' Co. find that Dumpcretes give them *low equipment cost, operating economy and top production.*

"It's just the thing for this type of work," says A. O. Strandberg, Project Manager. "We get real speed; on a recent ¾-mile haul, we made round trips in 6 to 8 minutes. We're especially pleased with their dumping ability. Dumping is easily controlled and bodies dump clean."

This cost-cutting performance is being repeated on big and small jobs all over the country. Learn how you can save on your jobs too. Mail the card today for all the facts.



Send booklet "Dumpcretes Place Concrete at Lowest Cost"

Name ____________________

Firm ____________________

Address ____________________

The lower cost Dumpcrete is lightweight, watertight, with 13-foot chute, controlled higher discharge and lower center of gravity. Hauls sand, gravel, and coal too. Available in 2, 3, and 4 yard sizes.

DUMPCRETE DIVISION
Maxon Construction Company, Inc.
591 Talbott Bldg., Dayton 2, Ohio

QUICK Solution to Man Power Problems

through the SEARCHLIGHT SECTION of this publication. The market place for those offering or wanting the services of men in the engineering construction field position, the SEARCHLIGHT SECTION offers a quick, effective solution to your man power problems. Because its readership is confined to just the type of men you need, waste circulation is avoided—you reach only the men you want.

Classified Advertising Division

ENGINEERING NEWS-RECORD

330 W. 42nd St. **New York, N. Y.**

Kellum Smith, McKim, Meade & White, 101 Park Ave., New York, N. Y., advisory archts., Sandlass, Wieman & Assoc., 1021 N. Calvert St., struct. engrs., Chas E. Daniel, Federal Land Bank Bldg., mech. and consult. engrs. CD 12/28/49.

LOW BIDDERS

▲ **Dinwiddie Constr. Co.,** 210 Crocker Bldg., San Francisco, Calif. **Low Bidder. Approx. $1,800,000.** 5 story, bsmnt., rein.con., structural steel hospital wing and remodeling hospital, SAN FRANCISCO, CALIF. Children's Hospital, 3700 California St., San Francisco, Calif. CD 11/14, under LB.

W. R. Grimshaw Co., K O M E Bldg., Tulsa, Okla. Low Bidder, **$767,000.** Est. $625,000. Educational bldg., TULSA, OKLA. First Baptist Church, 409 S. Cincinnati St., Tulsa, Zone 2, Bids Dec. 12. CD 11/22.

Wayne Coulter Corp., 1510 Sansom St., Phila., Pa. abandoned project, apartment bldg. and offices, Wayne Ave. and Coulter St. PHILA. PA. **$700,000.** CD 11/22.

CONTRACTS AWARDED

▲ **W. D. Jameson Constr. Co.,** Stevick Bldg., Memphis, Tenn., **Contract Awarded. Approx. $6,000,000.** 550 brick veneer housing, WEST MEMPHIS, ARK. Memphis View Co-operative Homes, Inc., c/o Faires & Sanford, archts., Falls Bldg., Memphis, Tenn. Cy Bond, Marion, Ark., engr. Awarded Jan. 10.

▲ **Plaza Gardens, Inc.,** c/o Burns Realty & Trust Co., 1536 Milton St., Denver, Colo. **$3,000,000.** Construct, manage and finance housing at Lowry Air Force Base, DENVER, COLO. Dpt. Air Force, Lowry Air Force Base, Denver, Colo. Sponsor will take bids for construction 2/1. Miles Lantz & Co., 211 S. Sante Fe Dr., Denver, Colo., engrs.

▲ **Algernon Blair, Henry Grady Bldg., Atlanta, Ga.** Contract Awarded, **Approx. $2,000,000,** apartment development, ATLANTA, GA. LaVilla Apartments, c/o contractor.

▲ **Schless Constr. Co.,** 709 Rogers St., Downers Grove, Ill. Contract **Awarded, $17,000,000,** four 1708 unit apartments, on 68 acre site, Dorchester Ave., 83 to 87 Sts., CHICAGO, ILL. J. T. and D. M. Schless, 1709 Roger St., Downers Grove, Ill. Monroe Bowman & Assocs., 221 N. LaSalle St., Chicago 1, Ill., archts. Awarded Jan. 10.

▲ **Jacobson Bros. Co.,** 20 N. Wacker Dr., Chicago 6, Ill. Contract Awarded, **Approx. $1,500,000.** 5 story, bsmnt., 100,000 sq. ft., steel, brick, stone Y.M.C.A. Bldg. HARVEY, ILL. Y.M.C.A., 19 S. LaSalle St., Chicago, 3, Ill. Bids Dec. 4, awarded Jan. 3. CD 11/27.

▲ **R. P Farnsworth & Co., Inc,,** 1515 S. Salcedo St., New Orleans, La. Contract Awarded. **$1,400,000.** 176 apartment units, NEW ORLEANS, LA. Winchester Apartments, Inc., c/o contractor. CD 8/11.

▲ **Wheeler Eng. Co.,** 369 Lexington Ave., New York, N. Y. Contract **Awarded. $1,500,000.** 4 story, bsmnt., and 1 story bsmnt., limestone, brick two adjacent office bldgs., Colesville Rd., off Georgia Ave., SILVER SPRING, MD. Silver Investment Corp., 951 Ellsworth Dr., Silver Spring, Md. Arthur L. Anderson, 1726 M. St. N.W., Wash., D. C., archt.

▲ **Rudnick Bros., Inc.,** 422 E. 165 St., New York, N. Y. Contract Awarded. **$4,000,000.** residential development, Bradley Rd. and Plumtree St., SPRINGFIELD, MASS. Evergreen Park Development Co., Inc., 11 W. 42 St., New York, N. Y. CD 1/11.

▲ **Field Bldg. Co.,** 21321 Woodward St., Ferndale, Mich. Owner Builds. **$4,500,000.** 650 frame houses, Ridgewood Proj., Nine Mile Rd., OAK PARK, MICH.

▲ **M. H. Carpenter, Inc.,** 8025 Forsyth Blvd., Clayton, St. Louis 24, Mo. Own Forces. **$25,000,000.** 1,200 brick, concrete dwellings, incl. community center, shopping center, parking areas adjacent to Chain-of-Rocks Park on Riverview Dr., Spring Garden Dr. to mile north of Chambers Rd. in Glasgow Village development, ST. LOUIS CO., MO. CD 6/29/50.

▲ **Reid Constr. Co., c/o Alexander Summer Co.,** 790 Queen Anne Rd., Teaneck, N. J. Owner builds, **$1,000,000.** 60 one-family houses to be called Maywood Lawns, MAYWOOD, N. J.

▲ **Nostrand Gardens Coop. Inc.,** c/o Morris Rothstein & Sons, archts., 186 Joralemon St., Brooklyn 2, N. Y. Owner Builds. **$3,000,000.** 6 six story apartments on site bounded by Avenues X and Y, Brown and Harring Sts., BROOKLYN, N. Y.

▲ **Stuart Assoc.,** c/o Teas & Steinbrenner, archts., Homeland Blvd., Malverne, N. Y. Owner Builds. **$6,000,000.** 450 houses on 100 acre site on Southern State Parkway, MASSAPEQUA, N. Y.

▲ **Syndicate,** c/o Emery Roth & Sons, archt., 18 E 48 St., New York 18, N. Y. Separate Contracts. Approx. **$1,500,000.** 15 story office, Broadway and 41 St., NEW YORK, N. Y. CD 8/24.

▲ **Crestwood Lake Corp.,** c/o Samuel Paul, archt., 163-18 Jamaica Ave., Jamaica. Owner Builds. Approx. **$6,000,000.** Garden apartments on 31 acre tract at Central Park Ave. and Roxbury Drive east, YONKERS, N. Y.

▲ **Huber Constr. Co., Inc.,** 69 E. Thruston St., Dayton, O. Contract Awarded. **$3,500,000.** 94 four-family apartments on east side Far Hills Ave., south of Stroop Rd., DAYTON, O. Herbert C. Huber, 69 E. Thruston St., Dayton, O.

United Engineers & Constructors, Inc., 1401 Arch St., Phila., Pa., design and construct. Approx. $700,000. office BRIDGEPORT, P. A. James Lees & Sons, Bridgeport.

▲ **Broadlawn Homes Co.,** 731 Valley Rd., Melrose Park, Pa. Separate Contracts. Approx. **$1,000,000.** Residential development, Montague St., PHILA., PA. Henry S. Berg, 1411 Walnut St., Phila., Pa., archt.

▲ **Brookhaven Corp.,** 160 Long Lane, Upper Darby, Pa. Separate Contracts. **$1,500,000. Residential development,** Woodcrest Ave. etc., PHILA., PA.

Henger Constr. Co., Dallas Natl. Bank Bldg., Dallas, Tex. Contract Awarded. Approx. **$650,000.** Addn. of 2 floors to existing 4 story mercantile. DALLAS, TEX. Nieman-Marcus Co., Main and Ervay Sts. CD 1/8.

Butcher-Sweeney, Inc., 806½ Taylor St., Fort Worth, Tex. Contract Awarded. Approx. **$750,000.** 4 addnl. storys to office bldg. FORT WORTH, TEX. Jesse H. Jones Interests, Sterling Bldg., Houston. J. Russ Baty, Bankers Mortgage Bldg., Houston, archt. Awarded Jan. 6.

Jackson-Lewis Co. Ltd., 80 King St. W., Toronto, Ont. Contract Awarded, approx. **$600,000.** 2 story, structural steel, rein.-con. Canadian head-office bldg., Yonge St. and Farnham Ave., TORONTO, ONT. Proctor & Gamble Co. of Canada Ltd., 110 Adelaide St. W., Toronto, Ont. Bids Dec. 28, awarded Jan. 2. CD 12/19.

▲ **Anglin-Norcross Quebec Ltd.,** 892 W. Sherbrooke St., Montreal, Que. Contract Awarded. Approx. **$1,000,000,** department store, Ste. Catherine St. West, MONTREAL, QUE. S. S. Kresge Co. Ltd., 5732 W. Sherbrooke St., Montreal, Que. G. A. McElroy, Thompson Bldg., Windsor, Ont., archt. W. G. Adamson, 7 Carlton St., Toronto, Ont., engr. CD 1/28/46.

INDUSTRIAL BUILDINGS

BIDS ASKED

Minn., Glencoe—PLANT—B.A. 1/31—Green Giant Co., Le Sueur, 1 story, 41x99 ft. canning plant addn. $90,000. Toltz, King & Day, 1509 Pioneer Bldg., St. Paul, engrs.

Pa., York—WAREHOUSE, etc—B. A. 1/31—Metropolitan Edison Co., 412 Washington St., Reading, warehouse and office. $900,000. Lacy, Atherton & Davis, Front and Elker Sts., Harrisburg, archts.

Ala., Demopolis—WAREHOUSE, etc.—B.A. About 2/1—Black Warrior Electric Co-operative, Demopolis, warehouse and office. J. Paul Gilmore, Farm Security Bldg., Montgomery, archts. CD 7/9/48, under Unclassied, Alabama.

Ill., Elgin—FACTORY—Bids Asked—Precision Diamond Tool Co., 102 S. Grove St., 2 story, brick, frame factory addn. $80,000. Leroy A. Thompson, 355 Congdon Ave., archt.

Kan., Kansas City—PLANT—Bids Asked—Sealright Co., Fairfax Independent Dist., plant adn. $300,000, C. E. Keyser, 609 Minnesota Ave., Kansas City, Kan., archt.

N. J., South Plainfield—FACTORY—Bids Asked—Ken-Tile Inc., 58 2 Ave., Brooklyn, N. Y., factory, $900,000. A Epstein & Sons, Inc., 2011 Pershing Rd., Chicago, 9, Ill., archt.

Pa., Phila.—MOTOR FREIGHT—Bids Asked—Cooper Motor Lines, 328 N. Randolph St., motor freight terminal and offices. Approx. $82,000.

▲ **Tex., Houston**—CHEMICAL PLANT—Bids Asked—Diamond Alkali Co., 1006 Main St., addnl. chemical plant expansion on 280 acre site on Ship Channel. $2,000,000. CD 11/18/48.

▲ **Tex., Port Lavaca**—PLANTS, etc.—Bids Asked—Aluminum Co. of America, Port Lavaca, Proj. 1, aluminum production pot line, incl. line bldgs. and other allied work at Fort Point, $5,500,000; Proj. 3, 40,000 kw. powerhouse, $1,750,000; storage and warehouse, $350,000; Proj. 2, aluminum production pot line, incl. required bldgs., line, allied work, Port Neches, $6,500,000; Proj. 4, 40,000 kw. electric power house, at Port Neches, $2,000,000. CD 5/20/48

Tex., San Antonio—AUTO SHOP, etc.—Bids Asked—J. M. Cavender, 814 Ave. B, auto shop, service, sales, $100,000. Bartlett Cocke, 3501 Broadway, archt. W. E. Simpson Co., 945 Milan Bldg., engrs. CD 1/8.

Ont., Hamilton—FACTORY, etc.—Bids Asked—Gerrard Co. Ltd., 390 King St. E., 1 story, concrete block, steel factory and office, Hunter and Walnut Sts. Approx. $100,000. Husband, Robertson & Wallace, 30 Hunter St. W., archts.

SOON LETS CONTRACT

▲ **Mich., Trenton** — PLANT — Chrysler Corp., 341 Massachusetts St., Detroit, soon lets contract. V-8 engine plant $10,000,000. Albert Kahn Associated Architects & Engineers, Inc., 345 New Center Bldg., Detroit, engr. CD 1/12.

Mo., St. Louis—PLANT—Concordia Publishing House, 2558 S. Jefferson Ave., Zone 18, soon lets contract, 3 story, bsmnt., rein.-con., brick printing and publishing plant addn. Approx. $750,000. Wischmeyer & Lorenz, Bd. Educ. Bldg., 911 Locust St., Zone 1, archts. CD 6/30.

CONTRACTS AWARDED

▲ **Christensen & Lyons,** 3454 Harlan St., Emeryville, Calif., Contract Awarded. **$1,000,000,** 200,000 sq. ft. plant expansion, SAN PABLO, CALIF. Rheem Mfg. Co., Chesley Ave. and S. P. R. R., San Pablo, Calif.

▲ **California Paperboard Products,** Pennsylvania and D Sts., Richmond, Calif. Own Forces, **$1,000,000.** conversion of Enterprise Foundry plant into PAPERBOARD PLANT, RICHMOND, CALIF.

▲ **H. K. Ferguson Co.,** 19 Rector St., New York, N. Y. Contract Awarded. Total cost **$10,000,000.** grading site; **Bethlehem Steel Co.,** 25 Broadway, New York, N. Y., steel, both for tank PLANT, NEWARK, DEL. The Chrysler Corp., Highland Park, Mich. Rest of contract may be let on cost plus basis. CD 1/12.

▲ **Freyn Engineering Co.,** 109 N. Wabash St., Chicago 2, Ill. Contract Awarded. **$42,000,000.** design and construct steel MILL expansion, ECORSE, MICH. Great Lakes Steel Co., Tecumseh Rd., Ecorse, Mich. Awarded Jan. 6.

Murch-Jarvis Co., Inc., 718 Locust St., St. Louis 1, Mo. Contract Awarded. **$650,000.** motor freight terminal, incl. loading dock, offices on 5½ acre tract, Chouteau Ave. between Grand Blvd. and Spring Ave., ST. LOUIS, MO. Yellow Transit Co., 803 S. 10 St., St. Louis 4, Mo.

▲ **Austin Co.,** 16112 Euclid St., Cleveland, O. Contract Awarded. Approx. **$2,000,000,** 120,000 sq. ft. FACTORY addn., ELYRIA, O. Bendix Westinghouse Automotive Air Brake Co., Cleveland St., Elyria, O.

▲ **Pittsburgh Steel Co.,** Gulf Bldg., Pittsburgh, Pa. Owner Builds. Approx. **$20,000,000.** 1 story, steel blooming-slabbing MILL, **Fort Pitt Bridge Wks.,** Canonsburg, Pa., steel fabrication, MONESSEN, PA. James Watkins, c/o owner, engr.

▲ **Daniel Constr. Co** 429 N Main St., Greenville, S. C. Contract Awarded. Approx. **$3,000,000.** 175,000 sq. ft. brick fiberglass yarn mfg. PLANT, ANDERSON, S. C. Owens-Corning Fiberglas Corp., Nicholas Bldg. Toledo, O. Lockwood Greene Engineers, Inc., 10 Rockefeller Plaza, New York, N. Y., engr.-archt. CD 1/16, under CA.

▲ **Henry George & Sons,** Hutton Bldg., Spokane, Wash. Contract Awarded, **$1,500,000,** 1,200,000-bu. GRAIN ELEVATOR, KENNEWICK, WASH. North Pacific Grain Growers, Inc., Peyton Bldg., Spokane, Wash. CD 1/15.

▲ **Koppers Co.** Koppers Bldg. Pittsburgh, Pa. Contract Awarded, **$8,750,000** new block of 63 COKE OVENS, EAST STEUBENVILLE, O. (mail Mingo) W. Va. Wheeling Steel Corp., Wheeling, W. Va. CD 6/13/46.

UNCLASSIFIED

BIDS ASKED

† **N. Y., Montrose**—LANDSCAPING—B.A. 1/30—Veterans Admin., Vermont Ave. between H and I Sts. N. W., Wash. 25, D. C., landscaping for Veterans Admin. Bldg., Spec. 50184, Proj. No. 2250.

Ont., Toronto — CABLE, etc. — B.A. 1/30 — Toronto Transportation Comn., 35 Yonge St., supply approx. 71,500 ft. mineral-insulated copper covered cable and necessary fittings. CD 1/9/46.

N. B., Richibucto—HARBOR IMPRVS.—B.A. 1/31—Acting Secy. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., harbor imprvs. Richibucto Cape, Approx. $100,000. Plans deposit $25. R. Blais, c/o owner, engr. CD 3/36.

Texas — RURAL DISTRIBUTION LINES — B.A. 2/5 — Brazos River Transmission Electric Co-operative, Inc., 902 Amicable Bldg., Waco, 37.8 mi. 69 kv H-frame rural distr. lines, Hamilton and Comanche Counties. $90,000. CD 6/20/46.

† **N. D., Minot**—LANDSCAPING—B.A. 2/6—Veterans Admin., Vermont Ave. between H and I Sts. N. W., Wash. 25, D. C., landscaping for Veterans Admin. Hospital.

LOW BIDDERS

▲ **Missouri—Illinois Bi-State Development Agency,** Leif Sverdrup, chn., Syndicate Trust Bldg., 915 Olive St., St. Louis 1, Mo., received no bids Dec. 20, constructing, operating and financing harbor and wharf facilities adjacent to new Chain of Rocks Canal on Mississippi River, wharf, docks, warehouse, loading, unloading and transfer facilities. etc. GRANITE CITY, ILL. **$5,000,000.** CD 11/28.

▲ **Merritt-Chapman & Scott Corp.,** 17 Battery Pl., New York, Zone 4, Low Bidder, **$6,273,503,** pier and bulkhead shed substructures and other work, etc. construct new Pier 57, North River. Contr. 2742. NEW YORK, N. Y. Comr. Marine & Aviation, Pier A, North River. Zone 4. Bids Jan. 3. CD 1/5.

▲ **Atlas Constr. Co., Ltd.,** 4781 St. Catherine St. W., Montreal, Que., Low Bidder. **Approx. $4,500,000 to $5,000,000,** Lachine Canal Tunnel and approaches thereto, in vicinity of **Atwater Ave.,** MONTREAL, QUE. Dpt. Transport, Hunter Bldg., Ottawa, Ont. Bids Jan. 12. CD 1/4.

CONTRACTS AWARDED

B-Line Constr. Co., First National Bank Bldg., Oklahoma City, Okla: Contract **Awarded. $763,038.** 618.4 mi. rural distr. lines, Jewell, **Phillips** and Smith Counties, KANSAS, Jewell-Mitchell Electric Co-operative Co., Mankato, Kan. Bids Dec. 22. CD 1/3, under LB.

▲ **Michigan Consolidated Gas Co.,** 415 Clifford St., Detroit, Mich. Owner Builds. **$8,000,000.** 180 mi. 24 in. natural gas main, Austin to Detroit, MICHIGAN.

† **Parsons Constr. Co.,** 25 and Spring Sts., Omaha, Neb. Contract Awarded. **$625,000.** repair two load lines an other imprvs. at Nebraska Ordnance Plant, WAHOO, NEB. U. S. Eng., 1709 Jackson St., Omaha, Neb.

▲ **R. H. Fulton,** Box 1542, Lubbock, Tex. Contract Awarded. Total est. **$8,500,000** constr. about half of line extending from Chatam Station, Wyo., to Brule, Neb.*****Bishop & Lock Constr. Co.,** Magnolia Bldg., Dallas, Tex., **Ramsey Brothers,** Houston, Tex., and **O. R. Burden Constr. Corp.,** 6702 E. 21 St., Tulsa, Okla., remaining sections of line, extending to Mississippi River, crude oil pipe line, WYOMING, NEBRASKA, KANSAS and ILLINOIS. The Platte Pipe Line Co., Casper, Wyo. CD 9/5, under CA.

(Proposal Advertisements see pp. 73 and 74)

U. S. Government

Department of Commerce, Bureau of Public Roads, January 9, 1951. SEALED BIDS will be received at the office of the Division Engineer, Bureau of Public Roads, 1440 Columbis Pike, Arlington, Virginia, until 11:00 a.m., E.S.T., FEBRUARY 9, 1951, for Project 1F3, Baltimore-Washington Parkway, Prince Georges County, Maryland. Two Reinforced Concrete Bridges over Laurel-Bowie Road. The approximate quantities of the more important items are as follows: 34,000 cu. yd. Excavation, 4,080 cu. yd. Cement Concrete, 580,000 lb. Reinforcing Steel and 30,000 lin. ft. Treated Timber Piling. Minimum wage rates have been fixed as required by law. For plans and specifications, a deposit of $10.00 cash or CERTIFIED check made payable to the Treasurer of the United States, will be required to insure their return within 15 days after the opening of bids. Plans, specifications and proposal forms may be obtained at the address given above. H. J. Spelman, Division Engineer.

(277)

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3284) will be received by Bureau of Reclamation, Coachella, California, February 20, 1951, and then publicly opened for furnishing labor and materials and performing all work for the construction of earthwork, pipe lines, and structures, lateral 94.2, part 1 of unit 9, Coachella Valley Distribution System, All-American Canal System, Boulder Canyon Project, Arizona-California-Nevada. The work is situated in the vicinity of Mecca, California. Principal items are approximately: excavation for pipe trenches, 56,000 cu. yds.; furnishing and laying 14 mi. of precast-concrete pipe 10 to 72 inches in diameter; and other work. Time allowed for completion will be 180 days. For particulars, address Bureau of Reclamation, Coachella, California; or Building 1-A, Denver Federal Center, Denver, Colorado.

MICHAEL W. STRAUS, Commissioner.

(275)

MISSOURI RIVER BASIN PROJECT, Design Section, Casper, Wyoming, January 10, 1951. UNITED STATES DEPARTMENT OF THE INTERIOR, BUREAU OF RECLAMATION. NOTICE IS HEREBY GIVEN THAT sealed bids on Specifications No. 705S-166 will be received at P. O. Box 280, Reclamation Center, Casper, Wyoming, until 10 a.m., Mountain Standard Time, February 6, 1951, and then publicly opened for furnished Structural Steel for Sinclair Substation, Transmission Division, Wyoming, Missouri River Basin Project.

Copies of the standard forms, of the specifications may be obtained from the following offices of the Bureau of Reclamation: Avery A. Batson, Regional Director, 318 New Customhouse, Denver 2, Colorado; and I. J. Matthews, District Manager, P. O. Box 280, Casper, Wyoming. No charge for copies of the specifications and drawings furnished for bidding purposes; for all others $0.50 per copy not returnable.

(280)

OFFICIAL PROPOSALS

Bids: March 22, 1951 (284)

Construction Work & Filter & Misc. Equipment & Piping

MEMPHIS LIGHT, GAS AND WATER DIVISION
City of Memphis
Memphis, Tennessee

THOMAS H. ALLEN PUMPING STATION
Contract No. 2456 General Construction Work
Contract No. 2457 Filter and Miscellaneous Equipment and Piping

NOTICE TO BIDDERS

Sealed proposals in duplicate, addressed to the Board of Light, Gas and Water Commissioners, City of Memphis, and endorsed with the bidder's name and designation of the work bid upon, will be received at the office of the Memphis Light, Gas and Water Division, 179 Madison Avenue, Memphis, Tennessee, until 2:00 P.M. on the 22nd day of March, 1951, and then publicly opened and read, for the construction complete of the Thomas H. Allen Pumping Station and work appurtenant thereto.

Proposals will be received for work to be performed under separate contracts as follows.

Contract No. 2456 Covering "General Construction Work" for and in connection with a 30 MGD water treatment plant and pumping station and including: a separate aerator building; two 10 million gallon reservoirs (clear wells); a garage; a fuel oil pump house; miscellaneous cast iron yard piping and connections to raw water collecting lines from the well fields; miscellaneous cast iron pump suction and discharge piping, Venturi tubes, flow meters and miscellaneous gauges; reinforced concrete pipe wash water sewer line; miscellaneous concrete pipe drains on the site; miscellaneous paving work on and adjacent to the site and; installation *only* of pumping, switch gear and diesel generating equipment and transformers furnished by the Owner.

Contract No. 2457 Covering "Filter and Miscellaneous Equipment and Piping" for ten 3 million gallon capacity filter units and including cast iron filter piping, filter bottoms and media, filter operating table accessories and chlorination equipment.

All bids must be made in duplicate upon the blank form of the proposal attached to the contract and specifications and each price shall be given both in writing and in figures, and in case of variance the price in writing will prevail.

The duplicate bid must be marked "DUPLICATE". In case of discrepancy between the original and duplicate bid, as filed, the original shall govern.

Each successful bidder will be required to execute a performance bond acceptable to the Board of Light, Gas and Water Commissioners on the form attached to the contract and specifications in the amount of 100% of the contract price.

All bidders must be licensed contractors as required by Chapter 70 of the Public Acts of 1931 of the General Assembly of the State of Tennessee, Section 1. Bidder's name and license number must be placed on the envelope containing these documents.

One complete set of plans and three copies of the specifications and contract documents covering contracts No. 2456 and 2457 may be obtained from the Memphis Light, Gas and Water Division, Memphis, Tennessee, or Black & Veatch, Consulting Engineers, 4706 Broadway, Kansas City 2, Missouri on receipt of a deposit of $80.00 for each such set of documents obtained. The full amount of the deposit for one set only of such documents will be refunded to the actual bidder making such deposit upon return of all documents not filed with his bid, and $20.00 of each other deposit will be refunded upon the return of all documents covered thereby all within 30 days after the bids are opened. All deposits shall be made payable to Black & Veatch.

Each proposal must be signed in ink by the bidder with his full name and with his business address or place of residence. In the case of a firm, the name and residence of each member must be inserted, and in case the proposal is submitted by, or in behalf of, a corporation, it must be signed in the name of such corporation by an official who is authorized to bind the bidder, and who shall also affix the corporate seal of such corporation. Any person signing a proposal as an agent of another, or of others may be required to submit satisfactory evidence of his authority to do so. The title of the person executing the proposal or contract shall be clearly indicated beneath his signature.

No bidder shall submit more than one proposal. Two proposals under different names will not be received from one firm or association.

Each bid must be accompanied by a bond executed by the bidder and a Surety Company satisfactory to the Board of Light, Gas and Water Commissioners on the form hereto attached, in the sum of ten (10%) percent of the amount of the bid, or, in lieu of such bond, the bidder may deposit with the Board of Light, Gas and Water Commissioners a certified check satisfactory and payable to the order of the Board of Light, Gas and Water Commissioners, equal in the amount to such bond. The said bond or certified check is required as a guarantee that, if the bid is accepted, a contract will be entered into and the performance thereof properly secured.

Each bidder to whom a contract may be awarded shall attend at the office of the Board of Light, Gas and Water Commissioners, with Sureties offered by him within ten (10) days (Sunday excepted) after notification by said Board of Light, Gas and Water Commissioners of acceptance of his proposal, and shall there sign the contract or contracts in quadruplicate. In case of failure to do so the bidder shall be considered as having abandoned the proposal, and the certified check or bond accompanying said proposal shall be forfeited to the Board of Light, Gas and Water Commissioners. Before the execution of the said contract or contracts, each successful bidder shall furnish a surety company bond in the sum of the total amount of the bid. Said bond shall be made upon the form attached hereto and shall be made a part of the Contract. Such surety shall be acceptable to the Board of Light, Gas and Water Commissioners. All contract bonds shall be written through local agents in Memphis, Tennessee.

The certified checks of all bidders will be returned upon demand after the execution of the contract or contracts, and bidding bonds of all bidders will become null and void upon execution of the contract or contracts, and the furnishing of the required surety bond by the successful bidder or bidders.

The Board of Light, Gas and Water Commissioners reserves the right to reject any or all bids, to waive any informalities in the bids received and to accept any bid or bids which it deems most favorable to the interest of the Memphis Light, Gas and Water Division.

No bidder may withdraw his bid for a period of 30 days after the date and hour set for opening bids.

Each bidder must make a careful investigation of the site and inform himself in all matters which may affect the work, as no information furnished by the Board of Light, Gas and Water Commissioners, or their representatives, upon such matters shall in any way relieve the Contractor from risk or responsibility in fulfilling all of the terms of the contract and specification.

In making the awards consideration will be given to the experience of the bidder, to his facilities for doing this kind of work and to his ability to complete the work at an early date.

Each bidder shall submit with his proposal a written statement in sufficient detail to satisfy the Board of Light, Gas and Water Commissioners that the bidder has ample equipment, experience, ability and resources to perform in a satisfactory manner all the work covered by the contract, the specifications and the plans and within the time specified in his proposal.

MEMPHIS LIGHT, GAS AND WATER DIVISION
City of Memphis, Memphis, Tennessee
C. S. Beatus, Director—Purchases, Stores & Supplies

Bids: February 9, 1951 (283)

Furnish Labor, Material and Equipment to Remove Existing Oil Burner and Install New One in Hangar #6, Newark Airport, N. J.

THE PORT OF NEW YORK AUTHORITY
PROPOSAL NO. 364

Sealed proposals for removing existing oil burner and installing new one at Hangar #6 at Newark Airport, N. J., will be received at the office of the Director of Purchase of The Port of New York Authority, Room 1402, 111 8th Ave., New York, until 11:00 A.M., February 9, 1951, at which time and place said proposals will be publicly opened and read.

Contract documents may be obtained upon request at the office of the Director of Purchse.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, January 25, 1951.

(Continued on page 74)

CONTRACTORS

Watch this Section

for New Projects

Publish your announcement thru the "Proposals Section" of Engineering News-Record and get their bids.

OFFICIAL PROPOSALS

(Continued from page 73)

Bids: February 7, 1951 (282)

Sewerage System and Treatment Plant

THE MIDDLEBURY MUNICIPAL AUTHORITY,
BOROUGH OF MIDDLEBURG,
SNYDER COUNTY, PENNSYLVANIA

Sealed proposals will be received at the Borough Building, Middleburg, Pennsylvania, until 3:00 P.M., E.S.T., February 20th, 1951 for furnishing all necessary labor, materials and equipment, and performing all work for the construction of a SEWERAGE SYSTEM AND A SEWAGE TREATMENT PLANT AND APPURTENANCES, and will there be publicly opened and read at that time. Separate proposals will be received upon two parts of the project as follows:

Sewerage System—including 32,000 lin. ft., 8" and 10" vitrified sewers; 4,600 lin. ft., 6" vitrified sewer house connections; 126 manholes and other appurtenances.

Sewage Treatment Plant — Base Bid (Primary Treatment only)—including Pumping Station, Imhoff Tank and Dosing Tank, Single Open Sludge Bed, Exterior Piping, Electrical Work, Fencing, Access Road and Landscaping, Specified Equipment and Appurtenances.

Alternate Bid (Complete Treatment)—including Pumping Station, Imhoff Tank and Dosing Tank, Trickling Filter, Settling Tank, Double Open Sludge Bed, Exterior Piping, Electrical Work, Fencing, Access Road and Landscaping, Specified Equipment and Appurtenances.

Proposals shall be accompanied by certified checks in accordance with provisions contained in the Specifications and in the following amounts:

Sewerage System —$20,000
Sewage Treatment Plant—$ 7,500

Copies of the Contract Documents, including Plans and Specifications, may be seen at the office of Gannett Fleming Corddry and Carpenter, Inc., 600 North Second Street, Harrisburg, Penna., or at the office of the Authority Chairman James G. Thompson, Jr., First National Bank Building, Middleburg, Penna.; or they may be obtained from the first of the above places upon deposit of the following amounts for each set:

Sewerage System —$20.00
Sewage Treatment Plant —$15.00

Full refund will be made to actual bidders for return of one set in good condition within ten (10) days after closing date for receipt of bids; refund for return of all other sets, in good condition within the same period, will be fifty (50) percent of the deposit.

MIDDLEBURG MUNICIPAL AUTHORITY
Borough of Middleburg,
Pennsylvania

Gannett Fleming Corddry &
Carpenter, Inc., Engrs.
600 N. Second Street,
Harrisburg, Pennsylvania

Bids: January 30, 1951 (259)

Clearing and Grubbing Rondout Reservoir

CONTRACT 398

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A. M., Eastern Standard Time, on Tuesday, January 30, 1951, for Contract 398, for clearing approximately 1,050 acres between Elevation 760 and an established clearing line and for grubbing approximately 275 acres between Elevation 825 and the clearing line, in the upper portion of the Rondout reservoir in preparation for the storage of water, all as set forth in the specifications. The Rondout reservoir is located in the Towns of Wawarsing, Ulster county, and Neversink, Sullivan county, New York.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of the City of New York, in the amount of fifteen thousand dollars ($15,000.00), for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained at the office of the Chief Engineer, Room 1311 at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, RUFUS E. McGAHEN, JAMES J. MORAN, Commissioners, Board of Water Supply; RICHARD H. BURKE, Secretary.

Bids: February 15, 1950 (273)

Hartman Run Bridge

MORGANTOWN, WEST VIRGINIA

Sealed proposals will be received by the County Court of Monongalia County, West Virginia from Contractors qualified by West Virginia or other approved highway departments for the construction of a reinforced concrete arch bridge and approaches thereto, which involve the following principal items of work:

Item No.	Description	Quantity	Unit
7	Dry Excavation	717	cu. yd.
9	Rock Excavation	161	cu. yd.
71-72	Class A Concrete	1,111	cu. yd.
75B	Metal Handrailing	671	lin. ft.
78	Reinforcing Steel	285,163	lbs.
91	Structural Steel	6,258	lbs.

All proposals will be received at the office of the County Court in the Courthouse at Morgantown until 10:00 A.M., February 15, 1951, at which time and place said proposals will be publicly opened and read.

Plans, specifications and other contract documents may be seen and inspected by prospective bidders at the office of Frank D. McEnteer, 504 Baltimore Avenue, Clarksburg, West Virginia. Prospective bidders may obtain copies of the above from the Consulting Engineer upon application accompanied by payment of $10.00 which will not be refunded.

The receipt and opening of bids is subject to evidence on the part of the bidder of his prequalification to perform.

Proposals must be made on the standard forms furnished as a part of the contract documents and shall be accompanied by a certified check in the amount of 5% of the total bid made payable to the County Court of Monongalia County, West Virginia. Checks of all bidders except the two lowest will be returned immediately after the opening. The County Court reserves the right to hold the check of the two low bidders for not to exceed thirty days.

Proposals shall be enclosed in a sealed envelope addressed to the County Court and bearing the name and address of the bidder and the designation "Bid on Hartman Run Bridge". The right is reserved to reject any or all bids.

COUNTY COURT OF MONONGALIA COUNTY, WEST VIRGINIA
By O. M. Herod, President

Bids: February 20, 1951 (281)

State Road Work

Sealed proposals will be received by the State Highway Department at its offices in Dover, Delaware, until 2:00 P. M., Eastern Standard Time, February 7, 1951, and at that time and place publicly opened for a contract ivolving the following approximate quantities:

Contract 1082
BRANDYWINE RIVER CROSSING
New Castle County
Two-Lane Steel and Concrete Structure
0.166 Miles

2	A. Clearing
900	C. Y. Rock Excavation
2,450	C. Y. Excavation for Structures
960	C. Y. C. C. Masonery, Abutment & Pier Footings
2,780	C. Y. C. C. Masonry, Abutments & Piers Above Footings
590	C. Y. C. C. Masonery, Deck & Sidewalk
363,500	Lb. Reinforcing Steel
1,140,000	Lb. Structural Steel
2	Each Soil Bearing Tests
630	S. Y. Stone Rip-rap
1,755	L. F. Structural Steel Railing
40	Bbl. Grouting Rock Cavities
	Conduit & Junction Boxes

The Employment Agency for this Contract shall be the Delaware State Employment Service, 601 Shipley Street, Wilmington, Delaware.

Attention is called to the Special Provisions in the proposal, specifications and contract agreement.

Performance of contract shall commence within ten (10) days after execution of the contract and be completed as specified.

Monthly payments will be made for ninety (90) per cent of the construction completed each month.

Bidders must submit proposals upon forms provided by the Department.

Each proposal must be accompanied by a surety bond, certified check, or money to the amount of at least ten (10) per centum of the total amount of the proposal.

The envelope containing the proposal must be marked "Proposal for the construction of State Highway Contract No.......".

The Contract will be awarded or rejected within twenty (20) days from the date of opening proposals.

The right is reserved to reject any or all bids.

Complete sets of plans and specifications may be obtained upon receipt of five dollars ($5.00) for each set, which amount will not be refunded.

Make checks payable to the State Highway Department.

STATE HIGHWAY DEPARTMENT
By: J. Gordon Smith, Chairman
M. Allen Wilson, Chief Engineer
Dover, Delaware
January 10, 1951

U. S. Government

Department of Commerce, Bureau of Public Roads, January 11, 1951. SEALED BIDS will be received at the office of the Division Engineer, Bureau of Public Roads, 1440 Columbia Pike, Arlington, Virginia, until 11:00 a.m., E.S.T., FEBRUARY 14, 1951, for Project 1B2, Baltimore-Washington Parkway, Prince Georges County, Maryland. Two Reinforced Concrete Bridges over Riverdale Road and Box Culverts at Carters Creek. Length 0.439 mile. The approximate quantities of the more important items are as follows: 86,200 cu. yd. Excavation, 3,900 cu. yd. Cement Concrete, 485,000 lb. Reinforcing Steel, 310 cu. yd. Stone Masonry and 16,000 lin. ft. Treated Timber Piling. Minimum wage rates have been fixed as required by law. For plans and specifications, a deposit of $10.00 cash or CERTIFIED check made payable to the Treasurer of the United States, will be required to insure their return within 15 days after the opening of bids. Plans, specifications and proposal forms may be obtained at the address given above. H. J. Spelman, Division Engineer.

(279)

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3289), will be received by Bureau of Reclamation, Casper, Wyoming, February 14, 1951, and then publicly opened for furnishing labor and equipment and performing all work for the installation of overhead ground wires on the Seminoe-Cheyenne 115-Kilovolt Transmission Line, Kendrick Project, Wyoming. The work is situate near Medicine Bow, Laramie, and Cheyenne, Wyoming. The work will consist of installing bayonets and 2 overhead ground wires on approximately 141 miles of line; replacing damaged poles and crossarms; and other work. Time allowed for completion will be 120 days. For particulars, address Bureau of Reclamation, Casper, Wyoming; or Building 1-A, Denver Federal Center, Denver, Colorado.

MICHAEL W. STRAUS, Commissioner

(278)

Read the Official

Proposal Columns of

ENGINEERING NEWS-RECORD

This Week and Every Week

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (18)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

PURCHASING AGENT—Large General contractor on Atlantic Seaboard wants a purchasing agent experienced in purchasing and expediting construction materials and equipment, subcontract and specialty items. Reply immediately stating age, education, experience, references and when available. Permanent position for qualified man. Will discuss salary when interviewed. P-8615, Engineering News-Record.

CONSTRUCTION COORDINATING office and field, superintending, plans, specifications, expediting Institutional Buildings Long Island. Must be thoroughly experienced, accurate, industrious. State references, salary, availability. P-8636, Engineering News-Record.

WANTED: CONSTRUCTION Superintendent. Construction Company located in Central Connecticut has opening for an A#1, experienced job Superintendent for heavy concrete construction, including Bridges, Roads, Dams, etc. Must be capable to handle job from start to finish, handling all phases of the work. Must have excellent record for character, experience and production. When answering give full information, including past experience and availability. Salary, secondary to procuring the right man. P-8621, Engineering News-Record.

CONSTRUCTION MEN—Construction superintendents, field engineers, field clerks preferably with experience in chemical plant and processing equipment. Locations in various States. P-8618, Engineering News-Record.

ESTIMATOR For quantity takeoff and with knowledge of checking details for permanent position with old established building construction company located at Allentown, Pa. Good apartment available if desired. State qualifications and approximate salary desired. H. E. Stoudt & Son, Inc., 1212 S. Fifth Street, Allentown, Penna.

ENGINEERS WANTED for industrial fire prevention field work by national insurance organization with offices in most major cities. These are permanent jobs with a real future, but candidates should appreciate that extensive away-from-home travel is involved. Age 26-40 preferred. P-8306, Engineering News-Record.

GENERAL CONSTRUCTION Superintendent, Project and Field Engineers, Piping Superintendent, and Carpenter Superintendent wanted, experienced in Hydroelectric dam and powerhouse construction, work located in Latin America, advise age, experience, reference, and availability, address P-8683, Engineering News-Record.

STRUCTURAL STEEL Detail Draftsmen and Checkers. A1 types of Structures. Vacation and bonus plan, group insurances, good working conditions. Only top quality men. Send complete written information. Sanborn, Steketee and Associates, 1214 Cherry Street, Toledo 2, Ohio.

CONSTRUCTION SUPERINTENDENT for Mid-Western General Contractors. Must be capable of supervising all types of construction work. Excellent opportunity for one who qualifies. Reply stating age, experience and references to Perron Construction Company, 6525 Lincoln Avenue, Detroit 2, Michigan.

DETAILER—REINFORCING and structural steel. Experience not necessary but preferred. Steady position and good pay with expanding steel fabricating concern in Southeast Florida. P-8699, Engineering News-Record.

CIVIL ENGINEERING Technicians: (Laboratory and Field) experienced in soils, concrete, asphalt. Structural Engineers: foundation design. Drillers: soil borings-diamond drilling. Projects located in the East, Midwest, South. Furnish complete information including age, education, experience and salary. Toledo Testing Laboratory, Toledo, Ohio.

WANTED: STRUCTURAL Engineers, Mechanical Engineers and Industrial Architects; some defense work. Seelye, Stevenson & Value, 101 Park Avenue, New York, N. Y.

SELLING OPPORTUNITY OFFERED

SALES ENGINEER Wanted—for engineering equipment. Surveying, sales experience necessary. Full particulars in first letter. SW-8717, Engineering News-Record.

DISTRIBUTORS FOR Waterproof cement, mineral base, no stearate or other organic material, stands up. Durlpel Corp., 10 E. 43 St., New York 17.

(Continued on page 77)

SEARCHLIGHT SECTION

Classified Advertising

EMPLOYMENT: BUSINESS: "OPPORTUNITIES" :EQUIPMENT USED OR RESALE

Positions open for

ENGINEERS

Process (Chemical) Engineers
Construction Engineers
Project (Mechanical) Engineers

To Work On Petroleum, Petro-Chemical and Chemical Projects

Write in complete detail, giving age, positions held, references, education, salary expected. Personal interview can be arranged.

Address Personnel Department

E. B. BADGER
& SONS COMPANY
75 Pitts St., Boston, Mass.

Gen'l. Supt.—Resident Mgr. Available. Actual job site experiences. All phases large, medium major operations on varied facilities, light & heavy, Industrials, Bldgs, Modifications, Rolling Mills, R.R.'s, Airports, Hwy's, Power Utilities & Defense Plants. Capacity coordinate all trades & Sub-Contractors forces; to man, to plan production cost-wise. Able to meet & deal with owners, Engr's, Archt's & related agencies; and to cope with complex procedures for Bid & Fee type projects.

Box 86, Kew Gardens 15, N. Y.

ESTIMATOR

Experienced in quantity survey on Fire Brick, Steel and Concrete wanted by well-established steel plant engineering and contracting firm specializing in open hearths and reheating furnaces. Permanent work. Location downtown Pittsburgh. Apply by mail.

SUITE 300
610 Smithfield St., Pittsburgh 22, Penna.

Construction Superintendent & Engineer

Wanted by well-established national organization. Must be graduate of technical college, and experienced in building construction and installation of equipment. Experience in chemical plants helpful. Must be willing to travel in continental U. S., state salary expected, and give detailed experience, together with age and education. Write Box EN 1374, 221 W. 41 St., N. Y.

ENGINEER

Permanent opportunity for top position with industrial organization for mechanical-civil engineer with proven executive ability and minimum of 15 years experience oil refinery installations and building construction. Salary open. Replies confidential.

P-8735, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

CONSTRUCTION SUPERINTENDENTS

For building and concrete work in vicinity of Cincinnati. Also for work near Cleveland. Write full particulars or arrange for interview.

DUFFY CONSTRUCTION CORP.
540 Terminal Tower, Cleveland 13, Ohio

WANTED

CONSTRUCTION SUPERINTENDENTS AND ESTIMATORS

By Established Georgia General Contractors Doing Work Throughout Southeast. Submit Full Particulars Including Experience Record, Availability, Salary and References.

P-8738, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

FREDERICK SNARE CORPORATION

Contracting Engineers

233 Broadway, New York City

Has Positions Open
in New York Office
for
EXPERIENCED STRUCTURAL, MECHANICAL AND PIPING DESIGNERS AND DRAFTSMEN

Reply by letter giving complete experience record, salary desired and date available. All replies will be treated as confidential.

Experienced structural steel detail

Draftsmen and Checkers

Apply, giving age, experience, and salary required.

SOUTHERN ENGINEERING CO.
Box 1087 Charlotte, N. C.

WANTED

MECHANICAL ENGINEER

Established consulting firm, New York area, desires Mechanical Engineer, capable supervising starting, testing, operating and correcting troubles of steam-electric station equipment. Plant betterment work involving considerable travelling. Technical education, and plant operating or betterment experience required. State education, experience and salary desired.

P-8758, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

SUPERVISORS GRADUATE ENGINEERS

or men with equivalent experience for large wire and wire products manufacturing company located 25 miles from Philadelphia. Permanent. Recent engineering graduates or persons with technical background, with or without wire mill operating experience. Write giving complete details regarding experience, if any, educational background, age, salary desired and military service background, including status in reserves.

P-8737, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

(Additional Positions Vacant Advertising on the following page)

ENGINEERS

ELECTRICAL - MECHANICAL - STRUCTURAL

Openings in Ohio and New York offices offering long term employment with good salary for qualified Group Leaders, Designers and Draftsmen experienced in one or more of the following phases of industrial plant design:

Electrical	Power, lighting layouts and electrical controls.
Mechanical	Plant layout, process piping, conveyors, heating and ventilation, boiler houses, process equipment layout, refrigeration, plumbing, tanks and vessels, packaging equipment, special machinery and equipment.
Structural	Structural steel and reinforced concrete.

Please submit complete resume stating experience, education, salary required and availability date.

THE H. K. FERGUSON COMPANY
Engineers and Builders

The Ferguson Bldg. 1783 E. 11th St.
Cleveland 14, Ohio

19 Rector Street
New York 6, N. Y.

CONSTRUCTION MEN WANTED IMMEDIATELY

Applications desired by large nationally known heavy works contractor headquartering Midwest for several positions as Area Construction Managers or Assistants, also Construction Project Managers and Superintendents on competitive bid, negotiated, or fee projects located generally Eastern half of U. S. A. or Overseas.

We require only men of mature and successful engineer construction experience and high degree of organizing, administrative ability, with good health and energy. Thorough knowledge of men, methods and machinery, specializing grading, structures, surfacing, highways, railroads, dams, airbases, etc.

Permanent positions with good salaries and away from home expenses with substantial commission bonus prospects to men of unusual ability. Please submit complete resume elaborating on experience, education, salary required and date of availability. Will acknowledge applications.

P-8666, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

CONCRETE-HYDRAULIC ENGINEERS

New York engineering organization, specializing in design and construction of power plants and industrial structures, desires engineers thoroughly experienced in design of heavy reinforced concrete foundations, steam and hydro-electric power plant structures, dams, and other hydraulic structures. Work will include planning, assignment of work, supervision of design and specification writing. Applicants preferably at least 40 years old with about 15 years' general field and office experience. Please submit resume to

P-8680, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

WANTED

TWO STRUCTURAL DETAILERS — CHECKERS

Permanent jobs for good men with experience in all types of bridge and building work. Apply by letter giving resume of experience and salary desired.

Paxton & Vierling Iron Works
P. O. Box 1085 Omaha, Nebraska

STRUCTURAL ENGINEERS

New York engineering organization specializing in design and construction of power plants, and industrial structures, desires engineers thoroughly experienced all phases of structural design, correlated with architectural design: Planning, assigning of work, supervision of design, writing of specifications, and requisitioning of materials. Applicants preferably at least 40 years old, with about 15 years' general field and office structural experience. Please submit resume to

P-8681, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

SANITARY ENGINEERS

California offers opportunities for professional advancement in this field. 2 years experience sanitary or public health engineering plus engineering degree or additional qualifying experience.

Salary $341 - $415

Write today. Recruitment Section, Dept. ASE

STATE PERSONNEL BOARD
1015 L Street Sacramento, California

DESIGNERS

Experienced in
hydro electric power plants.

CORBETT-TINGHIR CO.
39 Broadway N. Y. 6, N. Y.

ENGINEERING

We anticipate increasing our engineering organization during the next several months for the design of Oil Refinery, Blast Furnace, Open Hearth, Steel Mill and Power Plants.

These men should be qualified as draftsmen, designers, checkers or higher engineering skills on design of piping, instrumentation, pressure vessels, structural steel, concrete, platework, heavy mechanical equipment and electrical.

If you are interested and have engineering design experience on this class of work, write to us for a personnel form for prompt consideration of your qualifications.

This work is in our Cleveland office, and is on a 5-day, 45-hour week basis, with time and one-half over 40 hrs; also, vacation and holiday pay. Steady employment and a good opportunity with a good organization.

ARTHUR G. McKEE & CO.
2300 Chester Ave.
CLEVELAND 1, OHIO

Engineers Wanted

Civil—Electrical—Mechanical—Structural

***Apply* KAISER ENGINEERS**
Division of Kaiser Industries, Inc.
1924 Broadway Oakland, California

WATER POLLUTION CONTROL ENGINEERS

3—5 years experience related to treatment and disposal sewage and industrial waste plus degree in engineering or additional qualifying experience. Must be eligible for Calif. State License. Positions in Calif. State government. Starting salaries $4980 and $5772 per year. Official applications must be filed by March 10.
Write now to Dept. B, Recruitment Section, State Personnel Board, 1015 L Street, Sacramento 14, California.

Structural Designers and Detailers

with at least three years experience wanted by well-established steel plant engineering and contracting firm specializing in constructing open hearth furnaces. Apply by mail.

SUITE 300,
610 Smithfield Street Pittsburgh 22, Penna.

Plant & Maintenance Engineer

Wanted, by national organization, for Middle Atlantic location, graduate engineer, thoroughly experienced in plant engineering and maintenance. Must be free to travel. Give age, details of experience, salary expected, and when available for work. Write Box EN 1378, 221 W. 41 St., N. Y.

CONSTRUCTION SUPERINTENDENT

Thoroughly experienced in industrial work wanted by well-established Pittsburgh Steel plant engineering and contracting firm specializing in open hearth furnaces. Permanent work assured through large amount of work on hand. Apply by mail.

SUITE 300,
610 Smithfield St., Pittsburgh 22, Penna.

(Continued from page 75)

EMPLOYMENT SERVICE

SALARIED PERSONNEL, $3,000-$25,000. This confidential service established 1920, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L, 241 Orange St., New Haven, Conn.

POSITIONS WANTED

CHIEF STRUCTURAL and Architectural engineer. 25 years experience in the design and construction of industrial structures and power plants. PW-8628, Engineering News-Record.

GENERAL CARPENTER-Foreman 30 years on concrete dams, industrial plants, steel mills, hospitals, schools and bridges. Good union connections, available soon. PW-8693, Engineering News-Record.

CONSTRUCTION ACCOUNTANT—17 years diversified experience, capable of taking complete charge of any size job, sober, bondable, available at once. PW-8745, Engineering News-Record.

ESTIMATOR, INDUSTRIAL, commercial, public buildings, etc. Pricing, quantity surveys, etc. Available upon one month's notice. PW-8731, Engineering News-Record.

PROJECT MANAGER—General Supt. 25 years diversified experience in all types of construction. Six years in Latin America. Highest references. PW-8730, Engineering News-Record.

DRILL STEEL SHOP Foreman know how set up, operate and instruct all types of rock drill reconditioning and heat treating equipment. 20 years experience foreign and domestic. Will go anywhere. PW-8734, Engineering News-Record.

SUPERINTENDENT CONSTRUCTION 25 years broad industrial commercial institutional projects. Engineer. Anywhere. Salary $175 net. PW-8752, Engineering News-Record.

ENGINEER, EXECUTIVE. Member ASCE, member ASME. Twenty-eight years experience with contractors, Federal Government and in private practice on planning, design and administration of heavy engineering construction for large scale developments: hydro-electric flood control, steam-electric, bridges, industrials. Good organizer and administrator. Capable of assuming overall project responsibility. Registered engineer in several states and National Bureau certification. Seeks position commensurate with qualifications in engineering or associated fields. PW-8712, Engineering News-Record.

BRICKLAYER FOREMAN—twenty years experience large projects. Salary $150 weekly. PW-8723, Engineering News-Record.

CIVIL ENGINEER; 31; married; registered; 5 years experience in design, review and inspection of grading, drainage and paving projects. Desires work of similar nature involving some field duties. Will locate anywhere. PW-8724, Engineering News-Record.

CIVIL ENGINEER licensed, 35 years' experience design, construction heavy and light structures, housing. Estimating specification contract negotiations, costs, office routine. Wishes responsible position in East, but will go anywhere in U.S.A. if conditions are right. PW-8755, Engineering News-Record.

DESIGN ENGINEER, B.S.Ch.E., 5 yrs. chem. plant design exp., 3 yrs. lab. exp. Min. salary $6300. PW-8721, Engineering News-Record.

PART-TIME WORK WANTED

TECHNICAL WRITING by experienced editor-engineer will do ghost writing, technical editing, preparation of reports. PTWW-8657, Engineering News-Record.

BUSINESS OPPORTUNITY

Wanted working associate

with Engineering experience take active charge of old established Contracting Firm specializing in Sandblasting and Gunite work, Miami, Florida. Must be financially interested to the extent of 20,000 to 25,000 dollars, and help cover the business offered. Over 50,000 of working equipment on hand. Apply BO-8726, Engineering News-Record.

WANTED

POSITION IN FLORIDA

By a Registered Engineer with 20 Years' varied construction experience, as Chief Estimator, General Superintendent, Construction Engineer, Contractor's Assistant or Partner.

PW-8691, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

THUMB INDEX

A.I.S.C. Manual you are now using— *40 Engineer's Symbols*

Easy to read. Turn to any point instantly. Triples use of Manual. Endorsed by *American Institute of Steel Construction.* Mail book & $1.00 to HANDY THUMB
456 King Ave., New York 64, N. Y.

STRUCTURAL ENGINEERING

A Course of Instruction by Mail

FOR FORTY YEARS our courses have helped thousands to better positions and to pass State Board Examinations.

Information sent without obligation. Write today.

WILSON ENGINEERING CORP.
College House Offices - Dept. E.
Harvard Sq. Cambridge, Mass.

ESTIMATING SERVICE

Any Trade and Type of Project
Literature and Sample on request
Construction Survey Cooperative
101 Park Ave., New York 17, N. Y.
MUrray Hill 5-7317 Founded 1922

NEW STARTERS

Leece Neville — 12 Volt
70% off list.
GUILLE MACHINERY CO.
Box 6067 Norfolk, Va. Ph. 49453

WANTED TO BUY

1—70 foot crane boom, dragline, fairlead and lagging for Model 93-M Marion, 2½ C. Y. machine, or interested in trading shovel front for crane boom and dragline equipment.

J. H. BEERS, INC. R. D. 2, Bangor, Pa.

WANTED

One (1)

Portable Transit-Mix Hopper

Capacity approximately 60-75 yds.;
Also used concrete steel forms, size 2'x2' including corners.

W-8753, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

EQUIPMENT WANTED

One—¾ yd. Bay City

DIPPER STICK ATTACHMENT

New Haven Rd. Construction Co.
110 So. Orange St., New Haven, Conn.

WANTED

Skeleton or Deck Trailers

Suitable for transporting #95 Cleveland Ditching Machine. (Cleveland trailers preferred.) State full particulars and prices.

BAUGHMAN CONTRACTING COMPANY
Cumberland, Md.

WANTED

¾ yd. Shovel Dipper Front with all attachments for NorthWest 25 or L.S. 75 Speeder or ½ yd. Lorain 27.

CLAYDON COMPANY, LIMITED
290 Garry Street Winnipeg, Manitoba

WANTED TO BUY

1—Hyster towing winch for 1945 Caterpillar D-6, New or Used.

G. H. LITTS
R. D. 2, E. Stroudsburg, Penna.
Phone: Stroudsburg 3233

WANTED

TO BUY OR RENT

1 Heavy Steel Guy Derrick
50 Ton capacity at 45 degree angle
100 Foot Boom
Mast 110 or 112 Feet
Complete with Bull Wheel, Guys, Turnbuckles, Clips, Boom and Hoisting Blocks

THOMAS O'CONNOR & COMPANY INC.
Monatiquot St., North Weymouth 91, Mass.
Telephone WEymouth 9-4400

WANTED

LOCOMOTIVE CRANE

20 to 30 ton capacity.

Prefer diesel or gas but will consider modern steam rig. In reply state make, age, capacity, condition, type of power, location for inspection, best price. Reply to

W-8676, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

WANTED

TRACKSON SWING CRANE

Mounted on Caterpillar D4—International, TD9 or T9 Tractor—New or Used.

W-8633, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

—SURVEYING INSTRUMENTS—

INSTRUMENT REPAIR BY CRAFTSMEN

Our craftsmen have a completely equipped department fully able to accommodate the repair of all makes of transits, levels and measuring tape. Work includes thorough overhaul, cleaning, oiling and adjustment.

Precision work guaranteed.

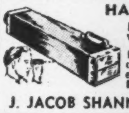
DAVID WHITE COMPANY
317 W. Court St., Milwaukee 12, Wis.

INSTRUMENTS FOR RENT

We rent transits and levels on a monthly or yearly basis. Reasonable rates. All instruments are fully guaranteed in first class working order.

DAVID WHITE COMPANY
317 W. Court St. • Milwaukee 12, Wis.

HAND SIGHTING LEVEL



Now Improved, with U.S.A. Waterproof Plastic Case

Ideal for spot checking grades, elevation, etc. Easy to use.

$1.85
P.Post 15¢ Extra

J. JACOB SHANNON & CO. 214 N. 22nd St. Phila. 3, Pa.

REINFORCING RODS

DEFORMED

200 TONS—⅜"
1000 TONS—½"
700 TONS—⅝"
200 TONS—¾"
100 TONS—1"
40' RANDOM LENGTHS

Manufactured To
A S T M-A-15-39 Specifications

REINFORCING MESH

6x6—10/10 Rolls—60"x150"
6x6— 6/10 Rolls—60"x150"

Shipment Immediately
From Chicago & New Orleans

CLONICK STEEL COMPANY

2375 S. Archer Avenue
Chicago 16, Ill.
Phone VICTORY 2-1475

"Member Association of Steel Distributors."

THE STATE OF NEW HAMPSHIRE
OFFERS FOR SALE

ROCK CRUSHING PLANT EQUIPMENT (used)

located at the State Prison, Concord, N. H., consisting of: 1 Kennedy Gearless Crusher #37 with 50 H.P. Motor, 3 H.P. Induction Motor, Screens and Bins; 1 Farrell Bacon Crusher, Style "E", with 100 H.P. Induction Motor; 1 American S & W Tramway, approximate length 2440 ft. with towers, buckets, 1" and 1-½" cable and loading hopper; 1—250 ft. 17" Conveyor with supports; 3—100 ft. steel frame conveyors; several thousand feet of cable and guy wires; Miscellaneous derrick fittings and boiler shell scale boxes; 1 Sullivan Air Compressor 9 x 8, Class WG 6, with 25 H.P. Induction Motor; 1 Double Drum Hoist with 30 H.P. Motor; 1 Triple Drum Hoist with 15 H.P. Motor; 1 Single Drum Hoist with Motor; 1—3 H.P. G. E. Motor and Watson Flagg Gear Reduction Motor; 1—3 H.P. G. E. Motor; 1—15 H.P. G. E. Induction Motor; 1—7-½ H.P. Fairbanks Morse Induction Motor; 1—10 H.P. Westinghouse Induction Motor.

Bid Form #RCP may be obtained upon request at office of Director of Purchase and Property, State House, Concord, N.H. This form contains details of equipment offered, inspection dates, and conditions of sale, *and must be used in submitting offers.* Bids close 10:00 A. M., Feb. 28, 1951.

Harold Cheney,
Director Purchase and Property

LORAIN A20, 1947

2 yd. Crawler Shovel, Diesel Engine, Excellent Condition, Located Metropolitan New York.

EDWARD EHRBAR, INC.
29 Meserole Avenue Brooklyn 22, N. Y.

• STRUCTURAL STEEL SHAPES •

New and Used—Immediate Delivery

At present our inventory of steel shapes and forms includes a full line of both new and used steel especially for heavy construction work. 4" I beam to 36" Girder Beam. 14" Columns 287#/398#

BEARING PILE SECTION

Stock list on request. Write, wire or phone.

HY DRACHMAN STEEL CORPORATION

Warehouse
14-23 34th Ave., Astoria L. I., N. Y.
Astoria 8-8023; 8-4484-5

Sales Office
563 E. Tremont Ave., New York City, N. Y.
Cypress 9-5440-1

FOR IMMEDIATE DELIVERY

1—Factory New Bucyrus-Erie 54B Dragline
1—Lorain 820 Shovel & Dragline 1 yr old
1—Northwest 80D Shovel, Serial 6800's
1—Northwest 80D Shovel & Dragline Serial 8800's
1—Northwest 6 Shovel Serial 6370's
1—Bucyrus-Erie 54B Shovel & Dragline Used 1200 hrs
1—Koehring 605 Shovel & Dragline Serial 6420's
1—Lima 1201 Dragline Serial 5240's
1—Lorain 40 Backhoe & Dragline
1—Browning ⅝ yd Crane & Dragline
1—P & H 150 Crane & Dragline
1—Insley K12 Crane & Dragline
1—Lorain 30 Shovel ½ Yard

Wire, Call Or Write

Day Phone
Enka, N. C.
120 or 722

AL J. GOODMAN
Box 263
Asheville, N. C.

Nite Phone
Asheville, N. C.
5668

PUMPCRETES

Rebuilt Current Models
For Sale or Rent
CONCRETE EQUIPMENT COMPANY
312 E. Wisconsin Ave.
Milwaukee 2, Wis.

Equipment For Sale

In New York City Area

4—I-R Wagon Drills
5—Dust Collectors
3—Euclid End Dump Trucks, Model 27 FD
1—Eimco Model 40 Rockershovel, 36" Gauge
2—Conway Model 75 Mucking Machines, 36" Gauge

In St. Louis, Mo.

1—500 cfm Diesel Ingersoll-Rand Air Compressor
1—International TD-9 Hi-Lift
1—Oliver Model 80 Rubber Tired Tractor
1—Parsons Model 260 Trench Liner—New 1950
1—Parsons Model 310 Trench Liner—New 1950
1—P & H Model 150 Truck Crane
1—Carr Model A Formgrader

Frazier-Davis Construction Co.
1319 Macklind Ave. St. Louis 10, Mo.

1—N.W. 95 Drag Line 12000 Series 80' of Boom, Swamp Casts, Light Plant and Murphy Engine
3—N.W. 80 D Shovels 13000 Series
1—802 Lima Sovel and Drag
1—N.W. 25 with 3 Attachments
1—80 D New Shovel Front
1—802 Lima Shovel Front
1—N.W. 6 Back Hoe Attachment
2—D 4 Angle Dozers S.N.—5T 1200 Series
1—D 4 with traxcavator S.N. 7J5581
2—Front end Loaders on Rubber
25—Euclid Bottom Dumps
16—Euclid End Dumps 5 to 10 yrs.

CHAS. M. INGERSOLL CO.
19930 Detroit Rd. Rocky River, Ohio
ED ison 1-1010

STEEL FORMS

FOR SALE

COMPLETE SET OF BLAW-KNOX FORMS FOR STANDARD DAM PROJECT—MANUFACTURED IN 1949. THESE FORMS MEET SPECIFICATIONS OF U. S. ENGINEER CORP.

160—Lin. Ft. upstream face form, complete with cantilever uprights, scaffold frames and steel V-strips
80—Lin. Ft. Downstream face form, 6.5 in 10 slope, complete with cantilever uprights, scaffold frames and steel V-strips
160—Lin. Ft. adjustable curve forms for downstream spillway surfaces, complete with cantilever uprights and scaffold frames
320—Lin. Ft. bulkhead forms complete with cantilever uprights
6—Portable "A" frames for lifting cantilever forms complete with 3 ton hoist and adjustable backstay.

PLANS SENT UPON REQUEST.

THE ARTHUR A. JOHNSON CORPORATION
347 Madison Ave., New York, 17, N. Y.
Murray Hill 6-1070
Mr. Keahon

---

45 TON G.E. DIESEL ELECTRIC LOCOMOTIVE.
40 TON INDUSTRIAL LOCO. CRANE.
LIMA 1201 — 100' BOOM DIESEL CRANE.

DARIEN, 60 E. 42nd St., N. Y., 17, N. Y.

FOR SALE

DOLLIES—WHEELS TIRES

120 TIRES: 750x20-8 ply—Unused Recaps
120 TUBES: Heavy Duty Butyl—New
120 WHEELS: 6 Hole—Std. Budd—20"—Surplus New
All Above Mounted and Inflated
30 AXLES: 2½" sq.—Timken Brgs.—15,000#—70"—Surplus New
Above Assembled Make 30—4 Wheel Dollies

Gerard J. Murphy Co.
603 Denham Bldg., Denver 2, Colorado.
Phone Alpine 6797

D8—IH w. angle & DDPCU, good.
D4—7J bull blade, Huber 7 ton road roller, Cat. Diesel eng. (8800 power unit) Graders, 511 Adams & 11 Cat. tandems. A. W. Badger crane, AI. all above is good equipment.

UNITED MOTOR EQUIPMENT
914 Spring St., N. J. Rt. 25, Elizabeth, N. J.
Elizabeth 3-9013

CLETRAC DG 1947

With Heil Trailbuilder, new cab, power take-off and pulley. Good condition.

Connecticut Farm Equipment Company
Windsor, Conn., Phone 8-3628 8 A.M. to 5 P.M. After 5 P.M. Windsor 8-3914

ATTENTION CONTRACTORS LOGGERS, MIXER PLANTS AND EXPORTERS!

Twenty 1950 Model White 10-Wheel Trucks — Super Power Model WC-2264—176" W. B.

These are ideal vehicles for use with 15 ton dumpers or 4½ yard mixers

Available with or without 8 yard water level dump bodies

Equipped With

Timken SD 3010 Dual Drive axles
150A Super Power Engines
Double Channel Frames
B. L. 6231 Aux. Transmissions
10:00 x 22 Traction Tires

To be Sold As A Unit Or Individually

FOR FULL INFORMATION
WRITE OR WIRE:

J. P. McARDLE c/o
THE WHITE MOTOR COMPANY
930 Commonwealth Ave., Boston 15,
PHONE: ASPINWALL 7-5300

FOR RENT

MANITOWOC 3500 CRANE
Available March 1, 1951.

A. C. R. CO.
19615 Nottingham Rd., Cleveland 10, Ohio
Kenmore 1-8000

PILING

We do a Nation-Wide business in

STEEL SHEET PILING

New & Used Rented & Sold

143 pcs. 60&50 ft. Inland I22-Chicago
84 pcs. 35 ft. Carn. M116-Missouri
305 pcs. 35–15 ft. Beth. SP4-Alabama
208 pcs. 30–25 ft. Carn. M112-Minnesota
67 pcs. 20 ft. Beth. AP3-Buffalo, N. Y.

Other lengths & sections at various locations

All sizes Vulcan & McKiernan Pile Hammers & Extractors for Rent and Sale—Shop Rebuilt

Regardless of location of your job, wire or write

MISSISSIPPI VALLEY EQUIPMENT CO.
509 Locust St., St. Louis, Mo.
"WE BUY STEEL PILING FOR CASH"

FOR SALE

New Steel Sheet Piling

Bethlehem Section SP-4
160 Pcs., 60/62 ft. long

Contact

GLAZER STEEL CORP.
Knoxville Tennessee
Phone 4-8601

FOR SALE

621-S Page Diesel Walker, with 135' boom and 6 yd. bucket. Excellent condition. Pa. location.

1201 Lima Dragline, recent model, equipped with 85' boom, 3 yd. bucket and 100' boom, 2½ yd. bucket; Cummins diesel engine. Excellent condition.

54-B Bucyrus-Erie Dragline, 80' boom, 2½ yd. bucket; Buda-Lanova diesel engine. Pa. location.

54-B Bucyrus-Erie Hi-Lift Shovel, 45' boom, 34' stick, 2 yd. dipper; Buda-Lanova diesel engine. Pa. location.

54-B Bucyrus-Erie combination shovel and dragline; 45' boom, 34' stick, 2 yd. dipper, and 80' boom, 2½ yd. bucket; Buda-Lanova diesel engine. Pa. location.

48-B Bucyrus-Erie Dragline, with 80' boom, Buda-Lanova diesel engine. Used very little. Good condition. Located in Hazleton.

604 Lima Shovel, 23' boom, 18' dipper handle, 1½ yd. Mang. front dipper, 14'7" x 24" crawlers; 6 cyl., Cummins diesel engine. Very good shape.

37-B Bucyrus-Erie Combination 1½ yd. Shovel and Dragline. Excellent Condition.

Type 34 Lima Paymaster, with 18' boom, 15' dipper handle, 1 cy. Esco dipper, 11' crawlers, 30" treads and 3 cyl. G.M. diesel engine. Very good condition.

FRANK SWABB EQUIPMENT CO., INC.
Hazleton National Bank Bldg.
Hazleton, Pa. Telephone 4910

FOR RENT
NEW AND ALMOST NEW
MANITOWOC SPEEDCRANES
2½ Cu. Yd.—60 TON CAPACITY
Clemens Construction Company
P. O. Box 266 West New York, N. J.

PILING

RENT IT! . . .
"FASTER FROM FOSTER"

Need STEEL SHEET PILING?

LARGEST STOCKS IN U. S.
All Lengths • All Sections
Also Corrugated Steel Sheet Piling

Foster's rental rates give you a low fixed expense for competitive bidding purposes.

Pile Hammers & Extractors For Rental
Rails•Track Accessories•Wire Rope•Pipe

L. B. FOSTER co.
PITTSBURGH 30, PA. CHICAGO 4, ILL.
HOUSTON 2, TEX. NEW YORK 7, N.Y.

STEEL SHEET PILING

700 pcs Beth DP2—40 ft.
478 Tons SP4—20 to 62 ft.
500 Tons DP2—AP3-40 ft. and 30 ft.
41B & MARION 32 STEAM CRANES

DARIEN, 60 E. 42nd St., N. Y., N. Y.

CARLYLE
INDUSTRIAL RUBBER PRODUCTS FOR EVERY PURPOSE

IMMEDIATE DELIVERY OF CONVEYOR, ELEVATOR AND TRANSMISSION BELTING —FIRE, WATER, SUCTION, AIR, STEAM AND WELDING HOSE

WHY WAIT
We have 8 to 48
RUBBER CONVEYOR BELTING

TOUGH COVERS—Heavy duty, specially compounded abrasive resistant rubber covers having high tensile strength. Thoroughly capable of withstanding the abrasive action of bulk materials. Properly vulcanized to the carcass to assure utmost performance, economically.

STRONG CARCASS — Constructed of finest quality 28 and 32 ounce tough cotton duck, properly treated and impregnated to avoid mildew from moisture and atmospheric conditions. Each ply thoroughly embedded in rubber to prevent ply separation.

FLEXIBILITY — Careful attention has been given in the construction of all belts to have the proper flexibility assuring the following desirable features; troughs easily, runs true on all idlers, gouge resistant, excellent for long and short hauls and slope installations.

Avoid delays in your production schedules!

We carry in stock for your immediate requirements, Conveyor Belting in widths from 8 inches to 48 inches.

		Thickness		Type of
Width	Ply	Top Cover	Bottom Cover	Duck Carcass
8"	4	1/16"	1/32"	28 Oz.
10"	4	1/16"	1/32"	28 Oz.
12"	4	1/16"	1/32"	28 Oz.
14"	4	1/16"	1/32"	28 Oz.
16"	4	1/8"	1/32"	28 Oz.
18"	4	1/8"	1/32"	28 Oz.
20"	4	1/8"	1/32"	28 Oz.
20"	5	1/8"	1/32"	28 Oz.
24"	4	1/8"	1/32"	28 Oz.
24"	5	1/8"	1/32"	28 Oz.
26"	5	1/8"	1/32"	28 Oz.
30"	4	1/8"	1/16"	32 Oz.
30"	5	1/8"	1/16"	32 Oz.
30"	6	1/8"	1/16"	32 Oz.
36"	6	1/8"	1/16"	32 Oz.
42"	5	1/8"	1/16"	32 Oz.
48"	8	1/8"	1/16"	32 Oz.

INQUIRE FOR SIZES NOT LISTED.
ELEVATOR TRANSMISSION & V-BELTING ALSO IN STOCK

All our belting made by the leading belting manufacturers.

Write for Free Booklet on Installation. Care & Maintenance of Conveyor Belting.

SEND US YOUR INQUIRIES FOR OTHER RUBBER PRODUCTS.

CARLYLE RUBBER CO., Inc.
62-66 Park Place, New York 7, N. Y.
Phone Digby 9-3810

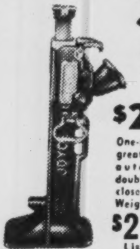
NEW STEEL JOISTS

1750 Pieces—12 Ft. Long

#82 Bethlehem Steel Expanded Joists

Shipment from stock

ACORN IRON & SUPPLY CO.
905 N. Delaware Ave.
Philadelphia 23, Pa.
WAlnut 2-7070



JACKS

NEW
RATCHET LEVER
15-TON JOYCE
No. 1928-A

$29.75 EACH SINGLY

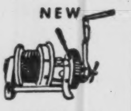
One-man ratchet lever jack of great power 60" steel handle, automatic lowering and double lever socket. Height closed 28" with 19" rise. Weight 94 to 98 lbs.

$27.50 - LOTS of SIX

List Price About $72.00

HAND WINCH

NEW

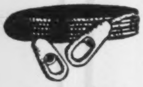


$37.50 EACH

A $75.00 VALUE

Two-Speed, Hand-Operated Winch. Complete with hand brake 2-Ton Capacity; tested for 3 Ton

CABLE SLINGS



SINGLE CABLE SLINGS

20 Ft. Long. Socket opening 3" x 1½". ¾" Wire Cable. New—in original packages.

$12.00 EACH

DOUBLE CABLE SLINGS

25 Ft. Long. Double rope steel cable. ⅝" diameter cable. New—in original packages. 2 Hooks. Regular Retail Price $75.00

$18.00 EACH

TERMS: Net 10 days to rated concerns. Others please send check with order. All items F. O. B. Cincinnati

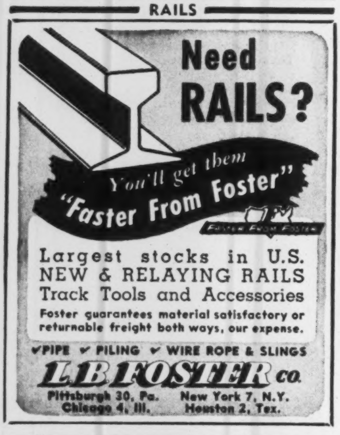
LIQUIDATOR'S SALES CO.
1610 READING ROAD
CINCINNATI 2, OHIO

UNIT 1947—MODEL 1020

With GMC 3-Cylinder Diesel Engine and Backhoe Attachment. Good condition.

NORTH JERSEY EQUIPMENT CO.
343 Elizabeth Ave. Newark, N. J.

RAILS



Need RAILS?

You'll get them "Faster From Foster"

Faster From Foster

Largest stocks in U.S.
NEW & RELAYING RAILS
Track Tools and Accessories

Foster guarantees material satisfactory or returnable freight both ways, our expense.

✓PIPE ✓ PILING ✓ WIRE ROPE & SLINGS

L.B. FOSTER co.
Pittsburgh 30, Pa. New York 7, N.Y.
Chicago 4, Ill. Houston 2, Tex.

New **RAILS** *Relay*

Track Accessories — Steel Storage Tanks

W. H. DYER CO., INC.
1859-X Railway Exchange Bldg., St. Louis, Mo.
Stocks at Various Points

- 1—Ransome 17E Paver with 32' boom—new.
- 1—Barnes 40M pump mounted on steel wheels, powered by Le Roi engine, guaranteed.
- 1—DeWalt Model GER radial arm saw with 5 h. p., 3 phase motor, guaranteed.
- 1—Fay and Egan #950 ball bearing 30" high speed band saw with 3 h. p., three phase, 220 volt motor. Guaranteed.
- 1—Worthington 105 cu. ft. Diesel-driven compressor with electric starting, mounted on pneumatic tired wheels. Guaranteed.
- 1—Rex 160 double pumpcrete with 1000' pipe, elbows, bends, all other accessories. Also included is approximately $2,000.00 in spare parts. Excellent condition.
- 1—Sasgen 18' derrick complete—new.
- 1—Williams ¾ yd. clamshell bucket. Used.
- 1—Wellman 1½ yd. clamshell bucket. Used.
- 1—Yaun ¾ yd. dragline bucket. Used.
- 1—Page 1 yd. dragline bucket. Used.
- 1—Archer heavy-duty double steel tower, 165', with 1¼ yd. concrete bucket, tower hopper, three-wheelbarrow platform, bolts, and nuts, near new, well painted.
- 1—O. K. portable tower and hoist outfit—four 10' sections tower, powered by Wisconsin 25 h. p. engine. Guaranteed.
- 1—1950 Chevrolet heavy-duty two-ton truck, 12' stake body. Equipped with Daybrook tailgate lift. New guarantee.

Nesbitt Equipment Company
451 Calvert Avenue, Alexandria, Virginia
P. O. Box 11, Tele: OVerlook 3886

For Sale—Like New

- 1—General Electric Generator, Model 12G308, alternating type, 3 phase, 60 cycle, 50KW, powered by UD18 International Harvester Diesel Engine.
- 1—D8 Caterpillar Motor, D13000.
- 1—D7 Caterpillar Motor, D8800

New Parts for:

TD18, TD14, TD9, International, Caterpillar & Allis Chalmers. Also have Fairleads, Power Control Units & Cutting Edges.

Bargain

- 1—TD18 International Tractor, complete with bulldozer blade.
- 1—D7 Caterpillar, Hydraulic.

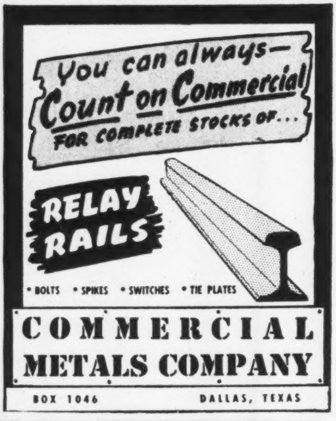
Julius Hebenstreit, Inc.
56-15 58th St. Maspeth, L. I., N. Y.

2 Front End LOADERS

1948, Model HD5G, Excellent Condition

FLEETWOOD PAVING CORP.
Carleton Ave., Mt. Vernon, N. Y.

RAILS



You can always—
Count on Commercial
FOR COMPLETE STOCKS OF...

RELAY RAILS

• BOLTS • SPIKES • SWITCHES • TIE PLATES

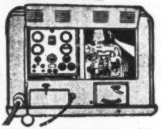
COMMERCIAL METALS COMPANY
BOX 1046 DALLAS, TEXAS

NEW—RAILS—Relayers

All sizes and weights. Also frogs, switches, spikes, bolts, tie plates, contractors' and mine equipment carried in stock.

M. K. FRANK
480 Lexington Ave. Park Bldg.
New York, N. Y. Pittsburgh, Pa.
Reno, Nevada Carnegie, Pa.

LIGHT PLANTS



Brand New!
War Surplus
Signal Corps
Power Unit PE 197

115v 60 cy. A.C. single ph. 5 K.W. Hobart, water cooled, 14 h.p. 4 cyl. Hercules engine. **Remote Control**, complete panel board with instruments. 150 ft. auto remote control cable with reel; 150 ft. #6 hvy. duty wire with reel; housed in metal case with replacement parts & tools. Cable with reels alone worth $400. Reg. price of unit $1900. Shipping wt. 1250 lbs. Our price, complete...... f.o.b. Chicago **$895.00**

WRITE FOR ILLUSTRATED FOLDER
WELLWORTH TRADING CO.
1831 S. State St. Dept. ENR Chicago 16, Ill.

FOR SALE

THE NEW **USTRAC** LIGHT-DUTY
BULLDOZER and LOADER

Now on display at our yard in the Bronx, Bruckner Rd., corner Metcalf Ave. Delivery from stock.

BENDIX MACHINERY CO. INC.
401 Broadway, New York 13
Tel. Canal 6-5693

FOR SALE

Bucyrus-Erie 120-B 5 Yard Lima 802 2 Yard
Monagahan Diesel Electric 3 Yard
Gantry Cranes Locomotive Cranes
Cement Unloader 5 to 32 Yard Wagons
Locomotives and Railroad Cars
25 Yd. Le Tourneau Carryalls

STONE THE CRANE MAN
1132 Prudential Bldg., Buffalo, N. Y.

FOR SALE

"Manitowoc" Model 3900 3½ Yd. 60 Ton capacity; tracks 20'4" long, 16'8" wide, 38" pads; 97' boom, high gantry, fairlead, tagline; Caterpillar D17000 power, 2 speed transmission.

BOYE & TINKLER CO.
2590 Oakdale Ave., San Francisco, Calif.
Phone: Mission 7-7677

CLETRAC AG TRACTOR

New, with Oliver Ware Hydraulic Controlled Bucket and dozer attachment.

Connecticut Farm Equipment Company
330 Poquonock Avenue, Windsor, Conn., Phone: 8-3628 8 A.M. to 5 P.M. After 5 P.M. Windsor 8-3914

PIPE

EST. 1904

DAVIDSON PIPE COMPANY INC.
FORMERLY
ALBERT & DAVIDSON PIPE CORP.

ONE OF THE LARGEST STOCKS IN THE EAST

Seamless and Welded ⅛" to 26" O.D.
All wall thickness Manufactured.
Specialty large sizes.
Cutting — Threading — Flanging —
Fittings — Valves.

Call GEdney 9-6300
50th St. & 2nd Ave., B'klyn 32, N. Y.

FOR SALE—*Immediate Delivery*

C. I. Water Pipe A.W.W.A. Standard

BELL & SPIGOT—12 inch
16 inch
20 inch
24 inch and other sizes
FLANGED PIPE— 4 inch
6 inch
8 inch
10 inch
12 inch

C.I. Water Pipe Fittings—B & S, and Flanged—All Kinds and Sizes

SOIL PIPE—EXTRA HEAVY—8 inch, 10 inch, 12 inch, 16 inch

TAGCO, INC.
111 Front Street Hempstead, N. Y.
Tel.—Hempstead 2-5535 or 2-8857

REX 200 DOUBLE PUMPCRETE

FOR SALE OR RENT

Rex 200 Double Pumpcrete together with over 800 feet of pipe, fittings and auxiliary equipment. Following completion of project recently, equipment has been completely rebuilt and is in top shape. Can be purchased on rental basis, or available for rent.

Bass Engineering & Construction Co.
Birmingham, Mich. Telephone: Detroit JO-4-6150

FOR SALE OR RENT

- 8—21" WF Beams 39' long.
- 1—Lorain ¾ yard Crane, Diesel engine powered, 3 years old.
- 2—Concrete Mixers.
- Miscellaneous pumps, saws, trucks, scales, compressors, etc.

COASTAL CONSTRUCTION INC.
P. O. Box 1401 Wilmington, N. C.

- 1—5 ton Hughes Keenan International Tractor Crane
- 1—2 Ton Garwood-Case Tractor Crane
- 2—Worthington 315 c.f. Compr.—pneumatic tired
- 1—Worthington VMV-40 Wagon Drill
- 8—Worthington Paving Breakers
- 3—Jack Hammer Drills—1000 bits
- 2—#3 McKiernan-Terry Sheeting Hammers
- 3" self priming Centrifugal and Diaphragm Pumps

SUBTERRANE CORPORATION
420 Lexington Avenue, New York 17, N. Y.

FOR SALE

Allis-Chalmers HD-19 Tractor

With Gar Wood angle blade, double drum cable control unit and canopy top. Excellent condition. About 3300 hours use. Can be inspected near Jackson, Ohio. Contact **RALPH WHITE**, Phone 404-Y, Jackson, Ohio or **LEONARD MURPHY**, 1236 Seventeenth Street, Phone 70314, Portsmouth, Ohio.

FOR SALE

LOADER

HAISS MODEL 75W

Mounted on 4 pneumatic tires

Excellent condition

ANDERSON EQUIPMENT COMPANY
Box 1737 PITTSBURGH 30, PA.

- One (1) Rex Dual Drum Paver.
- One (1) Le Tourneau Model W Scraper.
- Two (2) Gar Wood 6-yard 2-wheel Scrapers.
- One (1) International TD-18 Tractor w. Control U.
- Three (3) Allis-Chalmers HD 7 Tractors with Bulldozers.
- Four (4) Allis-Chalmers HD 10 Tractors w. Dozers.
- One (1) ¾ yd. Link Belt Dragline, Cat Diesel Eng.
- Four (4) Super C Tournapulls, excellent condition.

FEHRS TRACTOR & EQUIPMENT CO.
1809-11 Cuming St. Omaha 2, Neb.

FOR SALE

Model 6 Northwest Shovel Serial 12673. Equipped with 2-yard Esco and 1½-yard Amsco Dipper. 50 foot crane boom and gantry. Also change over parts. Also three Model WD60 Koehring Dumptors, Serial Nos. D2577, D2578 and D2579. Shovel and Dumptors guaranteed to be in good condition. Located at Fort Worth International Airport Project, Fort Worth, Texas.

T. L. James & Company, Inc. Kenner, Louisiana

FOR SALE

Bearing Piles and H-Beams

8" x 36#	40'
10" x 42#	40'
10" x 49#	40'
12" x 53#	40'
12" x 65#	40'

Plates — from 3/16" to 1"

WRITE WIRE CALL

ALBRO STEEL COMPANY
47-29 Van Dam Street
Long Island City 1, N. Y.
Stillwell 4-2720

BULLDOZERS

late models, fully rebuilt

CATERPILLAR D-7 hydr. & cable—3-T series
INTERNATIONAL TD-18 hyd. dozer, built 1948
INTERNATIONAL TD-18 cable dozer, dble drum
CATERPILLAR D-4 hydr. angledozer.
Special: INSLEY TRUCK CRANE......$3,950.00
Parts for D-7, TD-18 - TD-14 D8.

BENDIX MACHINERY CO., INC.
401 Broadway, New York 13 - Tel: Canal 6-5693

Allis-Chalmers—Model HD14

Serial 4754. Used less than 600 hours. Very good buy.

NORTH JERSEY EQUIPMENT CO.
343 Elizabeth Ave. Newark, N. J.

PROFESSIONAL SERVICES

Cards arranged by states, cities, names

Additional cards on following pages

Polk, Powell and Hendon

Engineers—Consultants

Harry H. Hendon—
Hugh A. Powell

Water Systems, Sewers and Sewage Treatment Plants, Steam and Hydro Plants, dams, drainage, industrial buildings, municipal planning reports, plans, estimates and construction supervision.

620 Chamber of Commerce Bldg.,
Birmingham 3, Ala.

Palmer and Baker, Inc.

Consulting Engineers

For Problems of Transportation
Subaqueous Vehicular Tunnels
Rock Tunnels
Utility Tunnels
Bridges
Grade Separations
Highways
Airports
Traffic Studies
Parking Problems
Waterfront & Harbor Structures
Complete Materials, Chemical and Soils Laboratories.

Mobile, Alabama

John S. Cotton

Consulting Engineer

Hydroelectric, water supply, irrigation, and multiple purpose projects; flood and erosion control; river basin development planning; dams and their foundations; tunnels; marine structures; valuations; rates.
28 Brookside Dr., San Anselmo, Calif.

Heron Engineering Co.

Chemical, Mining, Industrial and Hydraulic Plants, Irrigation, Water Supply, Power and Sewerage Systems, Large Rockfill Dams, Airports, Oil, Gas and Water Pipe Lines.
2000 So. Acoma, Denver 10, Colorado
Chama, New Mexico.

Duval Engineering & Contracting Co.

General Contractors

FOUNDATION BORINGS
For Engineers and Architects.

Jacksonville, Florida

Patchen & Zimmerman

Engineers

Construction Plant, Cofferdams, Structures, Industrial Plants, Dams, Sewerage and Sewage Treatment. Water Supply and Treatment, Supervision, Surveys, Reports.
Daniel Field Airport,
Augusta, Ga.

E. J. Albrecht Company

Engineers—Contractors

Steel, chemical and power plants, Dams, flood control projects, railroads, Bridges, tunnels, heavy excavation.

2626 West 26th Street, Chicago 8

Alvord, Burdick & Howson

Charles B. Burdick
Louis B. Howson Donald H. Maxwell

Consulting Engineers

Water Works	Sewerage
Water Purification	Sewage Treatment
Flood Relief	Power Generation
Drainage	Appraisals

Room 1401
20 North Wacker Drive, Chicago

De Leuw, Cather & Company

CONSULTING ENGINEERS

Transportation, Public Transit and Traffic Problems

Industrial Plants	Grade Separations
Railroads	Expressways
Subways	Tunnels
Power Plants	Municipal Works

150 North Wacker Drive
Chicago 6, Ill.

79 McAllister Street
San Francisco 2, Calif.

Consoer, Townsend & Associates

Water Supply—Sewerage—Flood Control & Drainage — Bridges — Express Highways—Paving—Power Plants, Appraisals — Reports — Traffic Studies—Airports.
351 East Ohio St., Chicago 11, Illinois

Greeley and Hansen

Engineers

Water Supply, Water Purification
Sewerage, Sewage Treatment
Flood Control, Drainage, Refuse Disposal
220 S. State Street, Chicago 4

Harza Engineering Co.

Consulting Engineers

L. F. Harza
E. Montford Fucik Calvin V. Davis
Hydro-Electric Power Projects
Transmission Lines, System Management, Dams, Foundations, Harbor Structures, Soil Mechanics
400 W. Madison St., Chicago 6, Ill

Hazelet & Erdal

Consulting Engineers

Fixed and Movable Bridges	Designs Supervision
Superhighways	Investigations
Industrial Bldgs.	Reports
Airports Dams	Surveys

Monadnock Block, Chicago 4, Ill.
Dixie Terminal Bldg., Cincinnati 2, O.
Heyburn Bldg., Louisville 2, Ky.

Pioneer Service & Engineering Co.

Consulting and Design Engineers
Operations - - - Purchasing
Steam - - Hydraulic - - Gas
Public Utilities - - Industrials
231 So. La Salle St. Chicago 4

Sargent & Lundy

ENGINEERS

Steam and Electric Plants
Utilities—Industrials
Studies—Reports—Design
Supervision
Chicago

Soil Testing Services, Inc.

Theo. W. Van Zelst Carl A. Metz
John P. Gnaedinger

Soil Borings Rock Coring
Engineering Testing of Soils
Soil & Foundation Reports

525 N. Noble Street Chicago 22

Interstate Engineering

Consulting Engineers

Design and Supervision of Municipal Improvements
Water Works, Sewage, Drainage, Surveys
Foundation Borings
Rock Island, Illinois

Jenkins, Merchant & Nankivil

Consulting Engineers

Municipal Improvements	Sewerage
Power Development	Water Systems
Traffic Surveys	Industrial Plants
Flood Control	Recreational Facilities
Airports	Investigations and Reports

805 E. Miller St., Springfield, Ill.

Boyd E. Phelps, Inc.

Engineers

Water Supply and Purification
Sewage and Industrial Waste Treatment
Power Generation, Airfields, Reports, Investigations, Appraisals.
622½ Franklin St., Michigan City, Ind.

Chas. W. Cole & Son

Sewerage, Sewage Treatment, Industrial Wastes, Water Supply, Water Treatment, Airports, Industrial Buildings.
Chas. W. Cole, Sr. Chas. W. Cole, Jr.
Ralph J. Bushee, M. J. McErlain
Wilber H. Gartner
220 W. LaSalle, South Bend, Ind.

Stanley Engineering Company, *Consulting Engineers*

Airports - Drainage - Electric Power Flood Control - Industrial - Rate Studies - Sewerage - Valuations - Water Works
Hershey Building, Muscatine, Ia.

J. Stephen Watkins

J. Stephen Watkins G. R. Watkins
Consulting Engineers
Complete engineering field crews available for field surveys or construction layout work.
East High Street Lexington, Kentucky
Branch office 210 Heyburn Building, Louisville, Kentucky

PROFESSIONAL SERVICES

Cards arranged by states, cities, names

Additional cards on preceding and following pages

G. Douglas Andrews Associates

Engineering Consultants

General Engineering
and Consulting Services

212 Washington Ave.
Towson, Baltimore 4
Maryland

207 Pine Street
Harrisburg
Pennsylvania

Saxe, Williar & Robertson

ENGINEERS—CONSULTANTS

Bridges—Structures—Foundations
Industrial Buildings

Baltimore
Maryland

Richmond
Virginia

Whitman, Requardt and Associates

Engineers — Consultants

Civil — Sanitary — Structural

Mechanical — Electrical

Reports, Plans, Supervision, Appraisals

1304 St. Paul Street

Baltimore 2, Maryland

Chas. T. Main, Inc.

Engineers

Design and Supervision of
Construction for Industrial Plants
Electrical, Steam and
Hydraulic Engineering
Investigations, Reports and Appraisals
Chamber of Commerce Bldg.
80 Federal St., Boston, Mass.

Metcalf & Eddy

ENGINEERS

Investigations Reports Design
Supervision of Construction
and Operation
Management Valuation Laboratory
Statler Building, Boston 16

Philip B. Streander and Affiliates

Consulting Sanitary Engineers

Water Supply, Treatment, Distribution
Sewage, Sewage Treatment
Plans, Supervision, Reports
683 Atlantic Ave. Boston 11, Mass.

Black & Veatch

Consulting Engineers

Water - Sewage - Electricity - Industry

Reports, Design, Supervision of Construction, Investigations, Valuation and Rates.

4706 Broadway, Kansas City 2, Mo.

Burns & McDonnell

Consulting and Designing Engineers

P. O. Box 7088, Kansas City, 2, Mo.

1404 E. 9th St., Cleveland, 14, Ohio

Harrington & Cortelyou

Consulting Engineers

Frank M. Cortelyou
E. M. Newman F. M. Cortelyou, Jr.

Movable and Fixed Bridges of All Types, Foundations, and Related Structures.

1004 Baltimore Kansas City 6, Mo.

Russell & Axon

Consulting Engineers

Geo. S. Russell F. E. Wenger
Joe Williamson, Jr.

Water Works, Sewerage, Sewage Disposal, Industrial and Power Plants, Appraisals.

408 Olive Street
St. Louis 2, Mo.

Municipal Airport
Daytona Beach, Fla.

Sverdrup & Parcel, Inc.

Consulting Engineers

Bridges, Structures and Reports, Industrial and Power Plant Engineering.

Syndicate Trust Bldg., St. Louis 1, Mo.
220 Bush St., San Francisco 4, Calif.

William J. Wenzel

Consulting Engineer

Great Falls, Montana

Developing the Great Northwest

Edwards and Kelcey

ENGINEERS

Surveys - Reports - Economic Studies Design - Supervision - Transportation Traffic - Parking - Terminals - Highways - Expressways - Grade Separations - Tunnels - Bridges - Water Supply

3 William Street Newark 2, N. J.

Benjamin L. Smith & Associates

Engineers

Investigations—Reports
Designs—Supervision—Valuations
Municipal Engineering and
Public Utilities
11 North Pearl St. Albany 7, N. Y.

E. Lee Heidenreich, Jr.

Consulting Engineer

Quarries
Crushing Plants
Milling Plants
Concrete Products Plants

Plant Layout
Storage Methods
Design
Appraisals

67 Second St. Newburgh, New York

Barker & Wheeler

Water Supply
Sewerage
Sewage Disposal
Power Systems

Utility and Industrial Valuations
Reports

New York City, 11 Park Place
Albany, N. Y. 36 State St.

Clinton L. Bogert Associates

Consulting Engineers

Water and Sewage Works
Refuse Disposal Industrial Wastes
Drainage Flood Control
624 Madison Ave., New York 22, N. Y.

Bowe, Albertson & Associates

Engineers

Water and Sewage Works—Industrial Wastes—Refuse Disposal—Municipal Projects—Airfields—Industrial Buildings—Reports—Designs—Estimates—Valuations—Laboratory Service.

110 William St., New York 7, N. Y.

Francis L. Brown

Consulting Engineer

Airports, Highways, Water Supply, Sewage-Disposal, Industrial Bldgs., Bridges

46 Cedar St. New York, N. Y.

Buck, Seifert & Jost

Consulting Engineers

(Formerly Nicholas S. Hill Associates)

Water Supply — Sewage — Hydraulic Developments, Reports and Valuations. Chemical and Biological Laboratories.

New York City, 112 E. 19th St.

Hugh L. Cooper & Co.

Incorporated

General Hydraulic Engineering

Including the design, financing, construction and management of hydro-electric power plants.

488 Madison Ave., New York 22, N. Y.

Ebasco Services Inc.

ENGINEERS
CONSTRUCTORS
BUSINESS CONSULTANTS

Design and Construction
Financial and Operating Consultation
Investigations and Reports
Consulting Engineering

Two Rector Street New York
209 S. LaSalle Street Chic. 4, Ill.
1604 K Street, N.W. Wash. D. C.

L. Coff

Consulting Engineer

Prestressed Concrete
Bridges and Frames
198 Broadway New York 7, N. Y.

Fay, Spofford & Thorndike

Engineers

Charles M. Spofford Ralph W. Horne
John Ayer William L. Hyland
Bion A. Bowman Frank L. Lincoln
Carroll A. Farwell Howard J. Williams

Bridges and Industrial Plants
Water Supply and Sewerage Works
Port and Terminal Works Airports

Valuations, Investigations, Designs, Supervision of Construction.

11 Beacon St., Boston, Mass.
420 Lexington Ave., N. Y.
(Graybar Bldg.)

Fraser-Brace Engineering Co., Inc.

Design Engineers & Constructors
of
Hydro-electric Developments
Metallurgical, Explosives, & Industrial Plants
Chemical & Process Industries
Railroads—Tunnels—Port Facilities

10 East 40th St.,
New York 16, N. Y.
Lex 2-5570

W. C. Gilman & Company

Consulting Engineers

Revenue Estimates — Toll Roads, Bridges & Parking Facilities. Investigations; Valuations; Rates — Electric, Gas & Transit Utilities.

55 Liberty St., New York 5

Hardesty & Hanover

Consulting Engineers

Successors to Waddell & Hardesty

Bridges
- Long Spans of All Types
- Movable—Lift, Bascule and Swing
- Hanover Skew Bascule
- Steel and Concrete Spans
- Grade Crossing Eliminations

Other Structures
Foundations
Supervision, Reports, Appraisals

101 Park Avenue, New York 17, N. Y.

Frederic R. Harris, Inc.

CONSULTING ENGINEERS

Harbors, Piers & Bulkheads, Drydocks.
Foundations, Soil Mechanics.
Sanitary & Industrial Waste Disposal.
Water Supply, Flood Control.
Airports, Highways, Bridges.
Power, Industrial Plants.

27 William Street New York
3 William Street Newark
Fidelity Phila. Trust Bldg. Philadelphia
Ferry Bldg. San Francisco

Howard, Needles, Tammen & Bergendoff

Consulting Engineers

Bridges and Structures

New York, N. Y., 55 Liberty St.
Kansas City, Mo., 921 Walnut St.

Knappen Tippetts Abbett Engineering Co.

Ports, Harbors, Flood Control, Power, Dams, Bridges, Tunnels, Highways, Subways, Airports, Traffic, Foundations, Water Supply, Sewerage, Reports, Design, Supervision, Consultation.

62 West 47th Street, New York City

Lockwood, Kessler & Bartlett, Inc.

ENGINEERS — SURVEYORS

General Engineering Services
Aerial and Ground Surveys
Photogrammetric Mapping
Domestic and Foreign

38 Great Neck,
Great Neck, New York
Great Neck 2-7605

Modjeski and Masters

Consulting Engineers

Design, Supervision, Reports, Inspection and Investigations, of Bridges, Structures, and Foundations.

535 Fifth Ave.
New York, N. Y.

State Street Bldg.
Harrisburg, Penna.

Moran, Proctor, Freeman & Mueser

Consulting Engineers

Foundations for Buildings, Bridges and Dams; Tunnels, Bulkheads, Marine Structures; Soil Studies and Tests; Reports, design and supervision.

New York 17, N.Y., 420 Lexington Ave.

PARDO, PROCTOR, FREEMAN & MUESER.
Ap. Corrfos 614 Caracas, Venezuela.

Parsons, Brinckerhoff, Hall & Macdonald

ENGINEERS

Airports, Bridges, Tunnels, Highways, Traffic and Transportation Reports, Subways, Foundations, Harbor Works, Valuations, Power Developments, Industrial Buildings, Dams, Sewerage, Water Supply.

51 Broadway, New York 6, N. Y.

Malcolm Pirnie Engineers

Civil & Sanitary Engineers

Malcolm Pirnie Ernest W. Whitlock
Richard Hazen G. G. Werner, Jr.

Investigations, Reports, Plans, Supervision of Construction and Operations. Appraisals and Rates

25 W. 43rd St., New York 18, N. Y.

The Pitometer Company

Engineers

Water Waste Surveys
Trunk Main Surveys
Water Distribution Studies
Penstock Gaugings
New York, 50 Church St.

Alexander Potter Associates

Consulting Engineers

Water Works, Sewerage, Industrial Wastes, Hydraulic Works, Reports, Designs, Appraisals.

50 Church St., New York, N. Y.

Clyde Potts Assoc.

Weston Gavett-Stanley N. Williams
Consulting Sanitary Engineers
Sewerage and Sewage Disposal
Water Works and Water Supply
Valuations and Appraisals
30 Church Street, New York 7

When you need a SPECIALIST in a hurry . . .

Engineering News-Record's Professional Service Section offers the quickest, most direct method of contacting consultants who may be available NOW.

PROFESSIONAL SERVICES

Cards arranged by states, cities, names

Additional cards on preceding pages

Sanderson & Porter

Engineers and Constructors

New York　Chicago
San Francisco　Los Angeles

Scheidenhelm, F. W.

Consulting Engineer

Hydraulic Engineering; Hydro-electric Development; Water Supply; Flood Control; Engineering Problems relating to Water Rights and Water Power Law; Appraisals. 50 Church Street, New York 7, N. Y.

Seelye, Stevenson & Value

Consulting Engineers

Successors to
Elwyn E. Seelye & Company
101 Park Avenue
New York 17, N. Y.

Airports, Highways, Dams, Concrete, Steel, Welding, Foundations, Stadia, Appraisals & Industrial Plants.

Elwyn E. Seelye, Albert L. Stevenson
Burnside R. Value
H. S. Woodward, Austin M. Rice, C. H. Hamilton, V. J. Pacello, C. M. Throop, R. Sahlberg, W. D. Bailey, J. U. Wiesendanger, A. R. Kelly.

Severud-Elstad-Krueger

Consulting Engineers

Structural Design • Supervision
Reports - Buildings - Airports
Special Structures
415 Lexington Avenue
New York 17, N. Y.

Ole Singstad

Consulting Engineer

Tunnels　Subways
Highways　Foundations
Parking Garages

24 State St.,　New York 4, N. Y.

Frederick Snare Corporation

Engineers—Contractors

Harbor Works, Bridges, Power Plants, Dams, Docks and Terminals.

Difficult and Unusual Foundations A Specialty.

233 Broadway, New York City 7
1400 South Penn Square, Philadelphia

Havana, Cuba　Lima, Peru
Bogota, Colombia, Caracas, Venezuela, San Juan, Puerto Rico, Guayaquil, Ecuador

D. B. Steinman

Consulting Engineer

BRIDGES
Design, Construction, Strengthening, Investigations, Reports, Advisory Service

117 Liberty St., New York 6, N. Y.

Taylor, Henry W.

Water Supply, Sewerage
Garbage Disposal, Incineration
Industrial Wastes Disposal
Hydraulic Developments

11 Park Place, New York City

The J. G. White Engineering Corporation

Design—Construction
Reports—Appraisals

80 Broad Street, New York 4

Consult these Specialists:

Let them save your time by bringing their broad experience in their specialty to bear on your problems.

Keis & Holroyd

Consulting Engineers

Formerly Solomon & Keis
Since 1906
Water Supply, Sewage Disposal, Garbage & Refuse Incineration, Industrial buildings
Troy, N. Y.　Ft. Lauderdale, Fla.

Gustave M. Goldsmith

Consulting Engineer

Structural and Building Design
Quantity Surveys
Production Planning

1734 Bella Vista, Cincinnati 37, Ohio

The Austin Company

Design and Construction

Manufacturing and Process Plants
Airports & Air Transport Buildings
Railroad Terminals and Facilities
Power Plants—Industrial & Institutional
Industrial Office Buildings and Laboratories
Reports and Plant Location Surveys

New York　CLEVELAND　Los Angeles
Chicago　Houston　Oakland
Detroit　Seattle

Havens and Emerson

W. L. Havens　C. A. Emerson
A. A. Burger　F. C. Tolles　F. W. Jones
CONSULTING ENGINEERS
Water, Sewage, Garbage, Industrial Wastes, Valuations—Laboratories

Leader Bldg.　Woolworth Bldg.
Cleveland 14　New York 7

Burgess & Niple

Civil and Sanitary Engineers
Consultants since 1908

Water supply, treatment and distribution
Sewage and industrial wastes disposal
Investigations, reports, appraisals, rates
Plant operation, laboratory, plans and specifications.
584 E. Broad St.　Columbus 15, Ohio

Jones, Henry & Schoonmaker

(formerly Jones & Henry)

Consulting Sanitary Engineers

Water Works, Sewerage & Treatment
Waste Disposal
Security Building　Toledo 4, Ohio

Toledo Testing Laboratory

Engineers—Chemists

Inspection　Tests
Research　Development
Concrete - Asphalt - Soils - Ceramics
Foundation Investigation
Borings　Diamond Drilling
Load Tests

1810 North 12th St.　Toledo 2, Ohio

Glancy & Carle

Engineers

Steel & Concrete Structures
Industrial, Commercial Buildings
Design, Supervision, Reports
1506 Market Street, Youngstown, Ohio

Benham Engineering Co.

ENGINEERS

Webster L. Benham
M. Am. Soc. C. E.
Water Supply & Purification, Sewerage, Sewage Disposal, Electric Light & Power, Roads, Drainage
Am. National Bldg., Oklahoma City, Okla.

Capitol Engineering Corporation

Engineers—Constructors—Management

Bridges　Dams
Planning　Airports
Sewage Systems　Water Works
Design and Surveys　Roads & Streets
Executive Offices Dillsburg, Penna.

Joseph G. Conrath

Consulting Engineers

Concrete, Steel & Aluminum Structures, Buildings, Bridges, Bins, Tanks, Towers, Catenary, Stadia, Dams, Tunnels, Airports, Foundations, Harbors, Highways, Sanitary.

439 East 6th St.　Erie 3, Pa.

Brookhart & Tyo, Inc.

Engineers

Highways
Industrial Buildings
Bridges and Structures
Design, Estimates, Reports
1729 N. Front St.　Harrisburg, Pa.

Gannett Fleming Corddry & Carpenter, Inc

ENGINEERS

Water Works, Sewage, Industrial Wastes & Garbage Disposal — Roads, Airports, Bridges & Flood Control, Town Planning, Appraisals, Investigations & Reports.

Scranton, Pa.　Pittsburgh, Pa.
Harrisburg, Pa.　Daytona Beach, Fla.
Medellin, Colombia, S. A.
Havana, Cuba

Aero Service Corporation

Photogrammetric Engineers

Aerial Topographic Maps
Precise Photo Mosaics
Plastic Relief Models
236 E. Courtland St.,
Philadelphia 20, Pa.

Albright & Friel, Inc.

Consulting Engineers

Water, Sewage and Industrial Waste Problems, Airfields, Refuse Incinerators, Power Plants, Industrial Buildings, City Planning, Reports, Valuations, Laboratory.

121 So. Broad St., Philadelphia 7, Pa.

Day & Zimmermann, Inc.

Engineers

Designs, Construction, Valuations
Reports and Management
Public Utilities and Industrials

New York　Philadelphia　Chicago

Frederick H. Dechant

Consulting Engineer

Chairman of the Board,
Frederic R. Harris Inc.
Water Works, Industrial Wastes, Sewerage, Recovery Processes, Hydraulic Works, Gas Plants
Philadelphia: Fidelity Phila. Trust Bldg.　New York: 27 William St.

Fridy - Gauker - Truscott & Fridy

Architects & Engineers

Water . Sewerage . Industrial Waste
Incineration . Power & Distribution
Airport . Building . Town Planning
1321 Arch Street . Philadelphia 7, Pa.

William A. Goff, Inc.

General Engineering and Consulting Services

Water, Sewerage, Refuse Incineration, Industrial Buildings, Power Plants, Airports, Town Planning, Plans, Supervision, Valuations, Reports.
Broad St. Station Bldg., Phila. 3, Pa.

M. M. Fertig

Consulting Engineer

Steel & Reinf. Concrete Structures
Bridges, Industrial Plants,
Foundations, Soil Mechanics
Design, Supervision, Investigations
Columbia Bldg., Pittsburgh, Pa.

Hunting, Larsen & Dunnells

Engineers

Industrial Plants—Structures
Bridges—Steel and Reinforced Concrete
Design and Supervision—Reports
1150 Century Bldg., Pittsburgh, Pa.

Morris Knowles, Inc.

Engineers

Water Supply and Purification, Sewerage and Sewage Disposal, Valuations, Laboratory, City Planning.
Pittsburgh, Pa.

Gilbert Associates, Inc.

Engineers and Consultants

Design and Supervision of Steam, Hydro, Water Supply, Sewage Disposal, Diesel Plants and Airports, Valuations, Laboratory

Reading, Pa.　412 Washington St.
New York　61 Broadway
Houston　Oil & Gas Building
Washington, D. C.　1417 K St., N. W.

Michael Baker, Jr., Inc.

THE BAKER ENGINEERS
CIVIL ENGINEERS, PLANNERS, AND SURVEYORS.
MUNICIPAL ENGINEERS
Airport Design—Sewage Disposal Systems—Water Works Design and Operation—Cons. Sur.—Surveys & Maps.
Rochester, Pa.　Jackson, Miss.

Lawrence A. Leary & Co.

Consulting Engineers

Brickwork & Masonry Constr. Problems
Surveys • Quantity • Safety & Inspection
Mortar Specifications
Box 269,　Wayne, Penna.

Lacy, Atherton & Davis

Architects and Engineers

Hotel Sterling Building,
Wilkes-Barre, Pa.

Myers & Noyes & Associates

Consulting Engineers

Water Supply, Sewage, Flood Control, Shore Protection, Irrigation and Reclamation, Reports and Valuations
2204 Tower Petroleum Bldg., Dallas, Texas
320 Wilson Building
Corpus Christi, Texas

Lockwood & Andrews

Consulting Engineers

Airports, Paving, Industrial Plants, Drainage & Sewerage, Site Locations, Soils & Foundations, Water Supply, Structures, Harbor Works, Valuations,
Reports — Design — Supervision

Union Nat'l Bank Bldg., Houston, Tex.

Engineering Services

Civil & Testing Engineers
S. D. Caplan, M.ASCE, A. M. Sans, M.ASTM.

Reports, Investigations
Water Supply & Distribution
Municipal Engineering
Materials Testing
Continental Bk. Bldg., Salt Lake City

Hutchings & Milani, Ltd.

Engineers & Constructors

Industrial - Roads - Power Plants - Dams - Tunnels - Harbor Works - Foundations - Hotels

CARIBBEAN - WEST INDIES - SOUTH AMERICA
BERMUDA-CARIBBEAN CONSULTANTS, LTD.
Architects & Engineers.

Design - Reports - Investigations

L. C. Milani, ASCE; C. W. Abbott, R.I.B.A.; N. J. Senesey, A.I.A.; P. Collet; T. F. Carr; H. J. Williams; S. H. Pace; W. Weir.

BOTH HEAD OFFICES AT HAMILTON, BERMUDA.

Atlantic, Gulf and Pacific Company of Manila

Engineers
Design - Construction
Inquiries invited for work in the Philippines and Far East
P. O. Box 626, Manila, Philippines
Cable Address: DREDGING Manila

Inspecting and Testing

Robert W. Hunt Co.

Inspecting and Testing Engineers

Inspection and Tests
of Materials
Supervision of Construction
for
Utility Plants,
Buildings. Bridges,
Machinery and Equipment

General Offices and Laboratories
175 West Jackson Boulevard, Chicago
New York — Pittsburgh — St. Louis

The Haller Testing Laboratories, Inc.

Testing and Inspecting of Construction Materials

801 2nd Avenue, New York 17, N. Y.
New York, N. Y. ● Boston, Mass.
New Haven, Conn. ● Plainfield, N. J.

"Tag Master"

• ADVANTAGES

1. Less Booming
2. Less Swinging
3. Less Travel
4. Control of clamshell
5. Can be used as a Dipper Trip

• BECAUSE

1. Tagline pull can be increased *manually* to cast—twist or snub a clamshell, (or trip a bucket.)
2. *Automatic* setting maintains *uniform* tagline tension at *all* bucket levels.

• USERS REPORT

1. Increased performance
2. Low cost operation

MORIN COMBINATION TAGLINE WINDER AND DIPPER TRIP

There are years of experience behind every "TAG-MASTER."

MORIN MFG. CO.
WEST SPRINGFIELD, MASS.

Send "TAG-MASTER" details to—

Name ....

Address ....

....

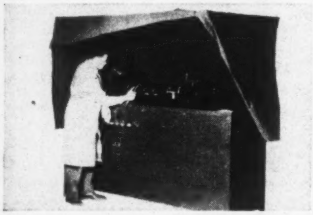
....

Make—Size & Model of Machine

NEW PRODUCTS

Tractor-drawn ditcher is hydraulically controlled

Hydraulic system of the Briscoe ditch counter-shaper controls depth of cut, wing angles, leveling, and steering operations. Power for the hydraulic system is supplied by a gasoline engine. Available in 4 sizes with wing spreads from 6 to 17 ft and bottom widths of 2½ to 6 ft, it will clean a ditch to a depth of 5 ft. Banks can be sloped to any degree. Spoil wings are hydraulically controlled extensions that serve the dual purpose of increasing total ditch depth and forming a flat top to the spoil bank. Ditcher can be "banked" on its longitudinal axis, independent of the wheels, to keep ditcher on the same cutting plane regardless of nature or unevenness of the bottom of the ditch.—E. V. Briscoe & Son, Kerman, Calif.

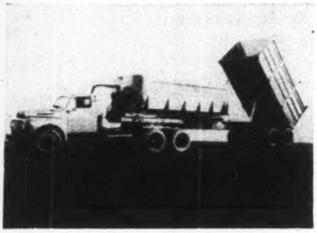


Automotive Magnaflux unit

Model DR-543 Magnaflux unit is particularly recommended for use in automotive overhaul shops. It handles mechanical parts up to 54 in. long. The Magnaflux system is designed for non-destructive testing to determine hidden flaws or cracks in crankshafts, pistons, gears, axles, and similar parts. Using Magnaglo compound, and examining under black light, defects show up as a glowing fluorescent line.—Magnaflux Corp., 5900 Northwest Highway, Chicago 31, Ill.

Coating for masonry walls

Durepel powder is a combination of inorganic mineral and metallic components which react with water to form a hard, dense surface coating to protect masonry against water seepage or absorption of moisture. In appearance, it provides a non-powdering eggshell finish when applied on inner or outer masonry surfaces. Durepel contains no stearates or other organic compounds.—Durepel Corp., 10 E. 43rd St., New York 17, N. Y.



Transfer-type semi trailer

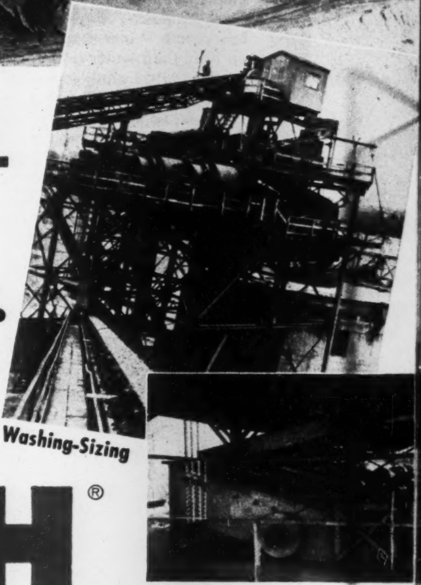
Trailer in two sections permits hauling large loads while maintaining relatively short body length. It is equipped with a hydraulically powered transfer system and a telescoping hoist. Back half of trailer is unloaded first; then the front half of the trailer is transferred into the empty back half and unloaded. Aluminum bodies are avail-

(*Continued on page 87*)

COLONIAL Stone and Sand Co., Inc.

uses

Scalping-Crushing



Washing-Sizing

TELSMITH®

TELSMITH Equipment in this Plant

- Two 5′ x 14′ Two-Deck Pulsator Scalping Screens
- Two 48″ Gyrasphere Crushers
- Eight 4′ x 10′ One-Deck Vibro-King Dry Screens
- Three 4′ x 14′ Two-Deck Vibro-King Wet Screens
- Three 60″ x 9′ Super Scrubbers
- Six 4′ x 12′ One-Deck Vibro-King Wet Screens
- Nineteen 24″ x 15″ Special Tunnel Gates
- Fourteen Field and Plant Conveyors—18″, 24″, 36″, 42″ wide, total length about 3000′

● COLONIAL of NEW YORK CITY and LONG ISLAND own and operate this modern all-steel sand and gravel plant. Designed in close co-operation with Telsmith engineers, plant layout and machinery is of the latest type, properly co-ordinated and balanced for flexibility and capacity, with interlocking features to assure smooth, trouble-free operation.

Production averages about 600 cu. yds. per hr., making four kinds of material: minus 1¼″ plus ¼″ crushed and uncrushed gravel mixed, minus ¼″ plus ⅛″ grits, minus ⅛″ sand, all washed; and minus ⅛″ dry sand. Most of the material is loaded into barges for shipment to New York. A truck-loading plant handles local demands.

In Scalping-Crushing Unit, two 2-deck Pulsators are in closed circuit with two 48″ Gyrasphere Crushers which reduce all gravel to minus 1¼″. In the Dry Screening Plant eight special Vibro-King Dry Screens produce the dry sand. Washing-Sizing Unit has two batteries of Vibro-King Screens—two-deckers ahead, with single-deckers following the Super Scrubbers. Get Bulletin 266 describing Telsmith Complete Plant Service.

G-18

SMITH ENGINEERING WORKS, 500 E. CAPITOL DRIVE, MILWAUKEE 12, WISCONSIN
Cable Address: Sengworks, Milwaukee

51 East 42nd St. New York 17
211 W. Wacker Dr. Chicago 6, Ill.
713 Commercial Trust Bldg. Philadelphia 2, Pa.
238 Main St. Cambridge 42, Mass.
A. N. Wigle Columbus 13, Ohio

Rish Equipment Co. Charleston 22, S.C. & Clarksburg, W.Va.
Rish Equipment Co. Roanoke 7, & Richmond 10, Va.
Wilson-Weesner-Wilkinson Co. Knoxville 8, & Nashville 6, Tenn.

Capacity ENOUGH FOR THE BIG JOBS...
Conscience ENOUGH FOR THE SMALL ONES...
with Both Engineered for *Price Savings* at
POSEY IRON WORKS

The Posey Iron Works offers the ample modern facilities required for economical large steel plate fabrication — including tank work up to highest water gallon capacity. Two large plate shops, an up-to-the minute machine shop and a fully equipped foundry permit Posey to do the complete job in its own plants without expensive sub-contracting.

However, Posey's world reputation has not been founded entirely on the notable "big jobs" it has successfully undertaken. Since 1910, Posey has also given conscientious attention to the fabrication of smaller equipment.

Headers for water intake lines, fabricated throughout in the Posey shops. Size: 72" O. D.

View of section of Posey's fully equipped machine shop.

Rule of thumb methods are not followed. Posey has the experience needed to study each job as an individual problem and to route it through production in the way best calculated to hold costs to a minimum. Both Posey engineering and Posey shop practice work methodically to eliminate every needless design kink . . . every avoidable construction snarl.

A Posey estimate has often been the first step toward substantial savings on steel plate construction. Write today without obligation.

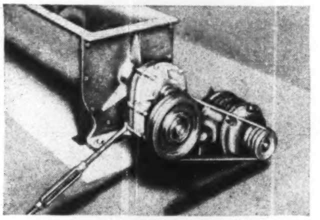
ESTABLISHED SINCE 1910
NEW YORK OFFICE: GRAYBAR BUILDING

POSEY IRON WORKS, INC.

formerly **LANCASTER IRON WORKS, INC.**
LANCASTER, PA.

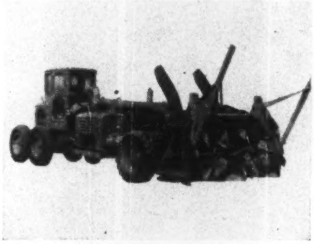
- TANKS
- TEES
- WROUGHT IRON, STEEL AND ALLOY STEEL PIPE
- O. D. PIPE
- ELBOWS
- AUTOCLAVES
- STEEL PLATE CONSTRUCTION

DIVISIONS: Steel Plate • Iroquois • Mayo Steel Form • Heating • Brick Machinery • Shipbuilding able when desired; lightweight, high-tensile steel is standard. Transfer controls are centrally located in the truck's cab. Overload by-pass valve provides safety factor in instances where obstructions prevent normal transfer.—Cook Bros. Equipment Co., 1815 N. Broadway, Los Angeles 31, Calif.



Torque-arm reducer

Shaft-mounted reducer handles output speeds from 115 to 330 rpm. It is produced in four sizes covering capacities up to 27 hp. Shaft mounting eliminates flexible couplings, sliding base, and foundation, and does away with lining-up operations. It can be driven through V- or flat-belt drives, although the designers recommend Taper-Lock sheaves. Interchangeable shaft-keyed bushings adapt shaft sleeves to different shaft sizes.—Dodge Mfg. Corp., Mishawaka, Ind.

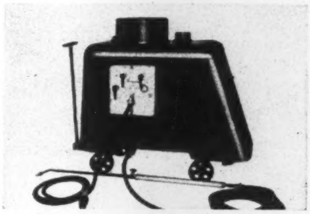


Grader-mounted snow plow

Sno-Flyr rotary plows are now readily adaptable to mounting on motor graders. In addition to providing year-round service for the grader, the plow employs an auxiliary engine that can be used when snow plowing is over as a grader replacement, power unit for generators and air compressors, and other engine applications. The plow is available for: Caterpillar graders with serial numbers from 9K-2911 to 9K-9999, 7T1 and up, 8T1 and up, and Allis-Chalmers AD-4 graders.—Wm. Bros Boiler & Mfg. Co., 1057 Tenth Ave., S. E., Minneapolis 14, Minn.

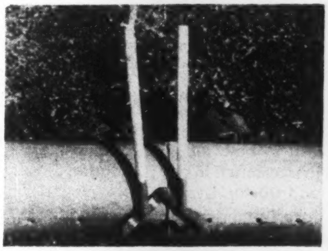
Porcelain tank lining

Lining material for hot-water tanks is available through franchised distributors. Hebco porcelain tank lining is said to protect tanks from rust, corrosion, and electrolytic action; to withstand temperatures ranging from freezing to 230 deg F; to be inert, making it safe for lining drinking water tanks; to contract and expand at the same rate as metal used in water tanks; and to not crack, chip, or peel.—How. E. Baker Co., 1499 E. 4th St., Los Angeles 33, Calif.



Combination cleaner

Model JO Hypressure Jenny is a combination steam cleaner and automotive cooling-system flusher. The oil-fired electric-motor-driven steam cleaner operates at 80 to 120-lb pressure, and has a 90-gal per hr water capacity. Used as a cleaner it reverse flushes complete cooling systems by employing heat, chemical, sudden but safe temperature changes, and a strong air blast.—Homestead Valve Mfg. Co., Hypressure Jenny Div., P. O. Box 843, Coraopolis, Pa.



Spring-clip pipe jointer

True-Line spring clip simplifies jointing operations of perforated drainage lines and makes lines more stable under backfilling. The clips are applied with a special hand tool and lie flat against the pipe. The Tru-Line is made of No. 9 oil-tempered or hard-drawn spring wire, coated for rust resistance. — Bowerston Shale Co., Bowerston, Ohio.

Transformer welder

Airco 200-amp Model MCX transformer welder has three current ranges selected by insulated tapered plug connectors and infinite hand crank adjustments. This welder employs an automatic hot-start control with a hermetically sealed gas-filled time-delay relay magnetic switch that has no open contact. The MCX meas-

(Continued on next page)

"I GO with the GREEN"

Yes, I'm a Construction Engineer...

I build wooden bridges — and for longer life, trouble-free service, I always build with decay-and-termite resistant...

BAXCO
CHEMONITE
PRESSURE TREATED LUMBER
TERMITE & DECAY RESISTANT

- CHEMONITE was developed by University of California Scientists.
- CHEMONITE has been proven by over 20 years of use.
- CHEMONITE resists termites and wood-decaying fungi.
- CHEMONITE is non-leaching, clean, odorless and paintable.
- CHEMONITE gives permanent protection to all wood products.
- Approvals: Federal and State specifications; American Association of Highway Officials; Los Angeles City Building Code.

Yes GO with the GREEN
trustworthy as it's color!

FREE brochure gives you the facts!

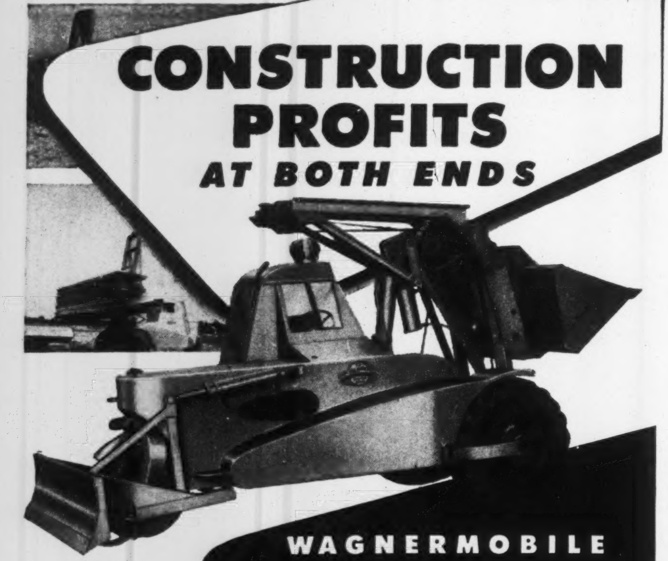
Write for FREE brochure! Learn why leading specifiers turn to Chemonite for better, lower cost wood protection!

J. H. Baxter & Co.
200 Bush St., San Francisco 4, Calif.
601 W. Fifth St., Los Angeles 13, Calif.

Baxco Corporation
541 Pittock Block, Portland 5, Ore.

J. H. Baxter & Co. of Ore.
P. O. Box 752, Eugene, Ore.

PRESSURE TREATED
BAXCO
TIMBER-POLES-TIES-LUMBER
CHEMONITE



CONSTRUCTION PROFITS AT BOTH ENDS

WAGNERMOBILE DUO-WAY *Scoop*

Additional height of track as shown here makes the Duo-Way a versatile profit-maker.

Scoop lifts to a height of 14 ft. and track tilt of 10° makes loading easy.

Big 84-inch dozer blade with 8000 lbs. down pressure levels land on this job. Scoop at other end can be filled for ballast.

SCOOP AT ONE END . . . . .
. . . . DOZER AT THE OTHER

Power-packed, all hydraulic controlled, the Wagnermobile Duo-Way Scoop cuts operating costs. Saves in both labor and equipment. Four big operations in one . . . loader, dozer, truck and tractor.

Big 84-inch dozer blade dozes out a bank . . . 1 cubic yard scoop at the other end scoops up dirt, lifts it and loads it. All by one machine—Wagnermobile Duo-Way Scoop.

Wagnermobile Special Features:

- Driver in side saddle position has all around vision . . . perfect control.
- Planetary drive . . . rugged "extra" power.
- Improved hydraulic controlled track and dozer.
- Special tilt control track tilts 10° back, 10° forward.
- Top section folds down to 9 ft. 6 in. for low road clearance.
- Highway speeds up to 20 mph.
- 4 speeds forward, 4 speeds reverse.
- Complete assortment of attachments for versatility.
- Wagnermobile Duo-Way Scoop is designed for top performance. Job tested for more profit on every job.

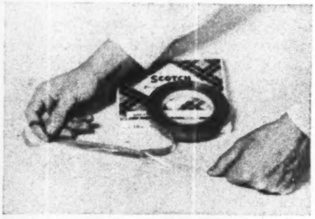
Write for literature and address of your nearest dealer.
We reserve the right to make improvements in design and specification without notice.

MIXERMOBILE MANUFACTURERS

WAGNERMOBILE

Box 7527 • Portland 20, Oregon

ures 12x17x23 in. Amperage range of 30 to 250 permits the use of 1/16 to 3/16-in.-dia electrodes.—AIR REDUCTION SALES CO., DIV. AIR REDUCTION CO., INC., 60 E. 42ND ST., NEW YORK 17, N. Y.



Double adhesive tape

Thin, transparent tape with adhesive on both sides holds tighter to most paper than it does to blueprint paper. Thus, when paper units are lifted and moved to other parts of the blueprint, the tape sticks to the paper unit, peeling away from the blueprint. It can be lifted repeatedly in making blueprint layouts. "Scotch" tape No. 666 is available in 1/4, 3/8, 1/2, 3/4, and 1-in. widths.—MINNESOTA MINING & MFG. CO., 900 FAUQUIER ST., ST. PAUL 6, MINN.

Concrete bucket

High-pressure air-supply tank and control valves are an integral part of the new Gar-Bro concrete bucket. Featured on the air-operated Model A are pull-chain-controlled valves that eliminate hose, connectors, and air supply at the dumping location. Double clamshell gates are grout tight and non-clogging, and have center discharge and dump straight down. They release any portion up to a full load, and can be remotely controlled.—GAR-BRO MFG. CO., 2416 E. 16TH ST., LOS ANGELES, CALIF.

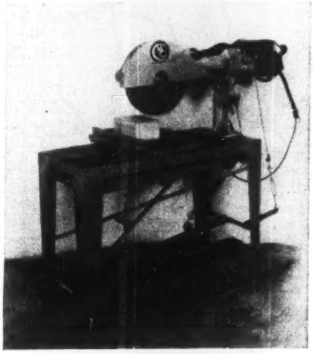
Arc welders in three sizes

Marquette arc welders are available in 200, 300, and 400-amp capacities. Feature of the 80 Series is the use of

Hipersil steel transformer cores, said to provide greater flux-carrying capacity and reduce power consumption and operating costs.—MARQUETTE MFG. CO., 307 E. HENN, MINNEAPOLIS.

Even-flow spray gun

Spray-gun spurting is said to be eliminated by the Graco mogul-type Powerflo pump. Mogul pumps operate directly from 400 to 100-lb drums or bucket-type containers. The Moguls weigh 35 pounds and will handle many types of materials including gummy mastics and other non-self-leveling substances.—GRAY CO., INC., INDUSTRIAL DIV., GRACO SQUARE, MINNEAPOLIS 13, MINN.



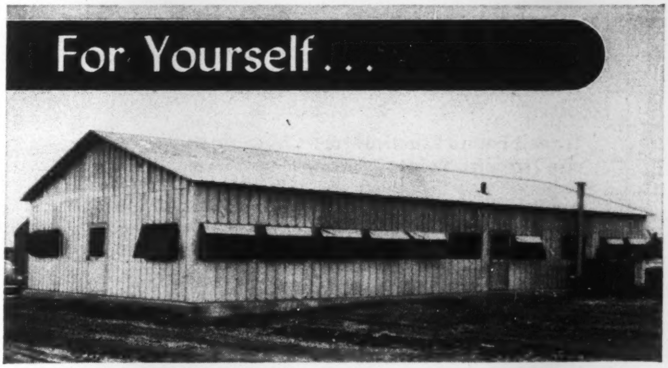
Wet or dry masonry saw

Cutting head, arm, and motor on the CMC masonry saw permit alignment adjustments off the rigid column, mounted directly to the jig-welded steel frame. This is said to make possible perfect blade alignment in relation to the cutting table, thereby increasing blade life. An independent centrifugal pump, complete with its own power, circulates coolant liquid during wet cutting operations. Other features include smooth operating foot feed, indexed adjustment for cutting height control, locking arrangement for plunge cutting and scoring, and V-shaped ball-bearing-equipped material feed cart. — CONSTRUCTION MACHINERY SALES CO., WATERLOO, IOWA.

(Continued on page 91)

For Your Customers...

In Great Bend, Kansas, this Butler Building is used as implement sales room and shop. Brick end and sidewalls, large display windows show how Butler Buildings can be adapted to needs of builder.



Sumner S. Sollitt & Co., engineer-contractors, Chicago, Illinois, use this Butler Building as construction company office. Butler Buildings make permanent yet portable job site shelters, field offices.

Speed up Profits with Butler Steel Buildings

You'll start to profit *sooner* when you recommend and use Butler Steel Buildings. Fire-safe, weathertight Butler Buildings go up faster with less labor . . . earn you earlier returns when adapted to your customers' needs or your own use. When your customer wants speed and economy and you want a fair profit, Butler Buildings are your answer. Easily insulated, and at low cost.

BUTLER

BUTLER MANUFACTURING COMPANY

Kansas City, Mo.
Galesburg, Ill.
Richmond, Calif.
Birmingham, Ala.
Minneapolis, Minn.

Address Dept NR21 at office nearest you:
7418 E. 13th St., Kansas City 3-E, Mo.
918 6th Ave., S. E., Minneapolis 14, Minn.
Richmond, Calif.
Send full information on Butler Steel Buildings.

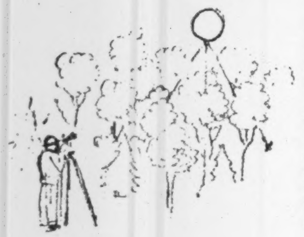
Name________________
Firm________________
Address________________
City________ Zone____ State________

The Surveyor's Notebook

Reporting on Unusual Surveying Problems and Their Solutions

Notekeeper: W. & L. E. Gurley, America's Oldest Engineering Instrument Maker

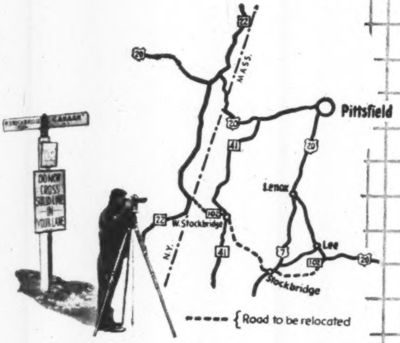
How would you solve this one?



A survey party preparing a highway location study at West Stockbridge and Stockbridge, Mass., faced the problem of getting initial lines between stakes separated by heavy timber. With no time for trial and error, J. R. Kelly, Chief of Party, suspended meteorological balloons—sometimes as high as 250 feet—over the far stakes. Pointing a Gurley Transit toward the balloons gave initial direction...close enough to cut through and obtain a line with minimum labor. Whenever a sight is impossible and cutting difficult, Kelly recommends a captive pilot balloon about 6 feet in diameter, filled with gas and guyed over the station point.

Transit Found Practical for "Checking In" on Precise Traverse Points—The special traverse on this study for a continuation of the Berkshire Thruway lay between two sections of a geodetic survey begun in the 1930's, but never completed. Field time was limited, but Kelly's party quickly established coordinates with the Gurley Transit, rather than with a theodolite usually used for tying in on a previously run precise traverse.

William J. Goggins, Survey Supervisor for the Commonwealth of Massachusetts, reports that error was negligible. His program calls for a relocation of Highway 102 —starting at the New York state line and running east to Stockbridge, eventually connecting into U. S. Highway 20 near Lee. Goggins' party had to run a 700-foot line over one mountain through which a tunnel is planned. "Check in" error was negligible, even though a 150-foot rise was encountered in the relatively short distance.



Gurley Transit's Reversion Level "Invaluable Aid"

In taping the line, the survey party used "slant measurements," taking also the difference in elevation between points. For this work, Goggins found the reversion-type level vial on the Gurley telescope "invaluable...easily read at all times." Checking the bubble in the Gurley reversion vial requires two readings only—one direct, and one reversed. Goggins says, "I am glad to have the Gurley Transit at this time...work will be very accurate...error practically eliminated."

Take a tip from William Goggins' notebook...Learn about versatile Gurley Transits. Bulletin 50 gives all details. Write for it today.

SURVEYORS: We welcome letters on your unusual solutions of surveying problems for future pages in The Surveyor's Notebook.

W. & L. E. GURLEY, UNION PLAZA, TROY, N. Y.

Surveying and Engineering Instruments, Hydraulic Engineering Instruments, Standard Precision Weights and Measures, Paper and Textile Testing Instruments, Reticle Making Facilities, Aeronautical Navigating Instruments, Meteorological Instruments.

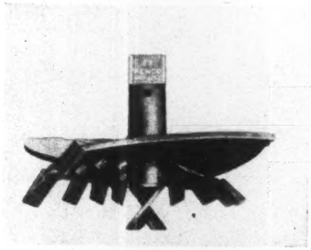
GURLEY

Surveying and Scientific Instrument Makers
Since 1845

(*Continued from page 89*)

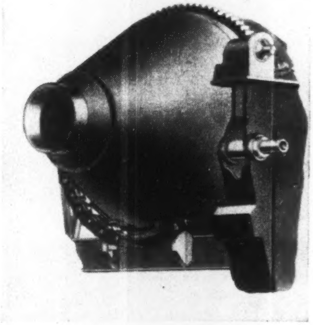
Small cooling towers

Atmospheric spray (Type H) cooling tower is designed for use with small water-cooled air-conditioning and refrigeration condensing units, and related applications. The Type H is available in 10 frame sizes with refrigeration loads ranging from 3 to 35 tons. Spray nozzles are brass clog-proof Binks Rotojets. Slip-fit louvers are made of redwood or galvanized steel.—BINKS MFG. CO., WATER COOLING DIV., 3114-40 CARROLL AVE., CHICAGO 12, ILL.



Twin-helix earth auger

Pengo earth auger is designed to fit, through special adapters, all makes of power-driven earth-boring machines. These augers are produced in nine sizes for hole diameters to 36 in. Twin-helix design eliminates back thrust against side of hole, making it possible to drill with less caving in sandy soil. Each half helix is equipped with a shank plate, each of which is provided with replaceable cutting points of abrasion-resistant alloy steel. The Pengo is said to dig in hardpan, decomposed rock, ordinary ground, and some kinds of caliche and sandstone.—PETERSEN ENGINEERING CO., 4126 TWENTY-SIXTH ST., SAN FRANCISCO, CALIF.



Central-plant mixer

Supremix mixer is installed as an integral part of a central-plant structure eliminating elevated foundations or separate mixer platforms. Hydrau-

(*Continued on next page*)

Mount it and Forget it!*

YOUR HOIST STAYS ON THE JOB LONGER WITH *Fulcrumatic* LIFT ACTION!
TRADEMARK

—ON THE HIGHWAY

—IN PIT OR QUARRY

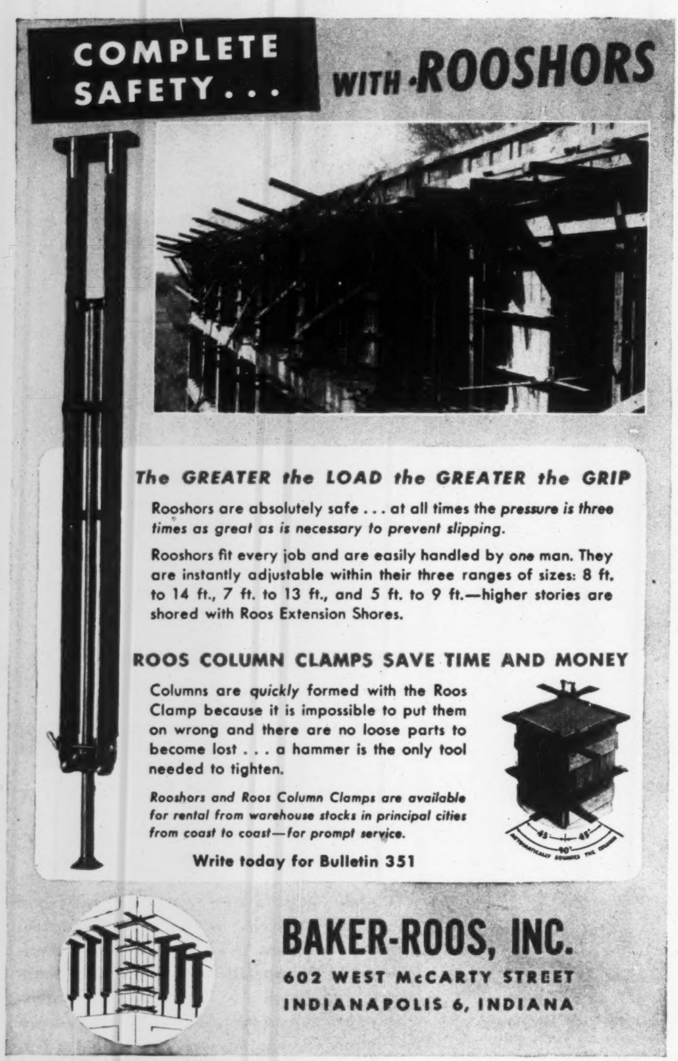
—IN INDUSTRY

"GEARED FOR THE LOAD"

* Only Galion's give you the "ready and rarin' to go" stamina of *Fulcrumatic* Lift action! Smooth, effortless unloading . . . even distribution of the payload weight over the entire body and frame . . . lifting energy concentrated on just one thing—lifting the load! All are important reasons why you can "mount a *Fulcrumatic* and forget it"...why you can depend on Galion's *Fulcrumatic* transmission action to deliver more tons years longer! See your truck dealer or Galion distributor for complete details.

THE GALION ALLSTEEL BODY COMPANY
GALION, OHIO

GALION Allsteel
Fulcrumatic HYDRAULIC HOISTS AND DUMP BODIES
TRADEMARK


COMPLETE SAFETY . . . WITH ROOSHORS

The GREATER the LOAD the GREATER the GRIP

Rooshors are absolutely safe . . . at all times the *pressure is three times as great as is necessary to prevent slipping.*

Rooshors fit every job and are easily handled by one man. They are instantly adjustable within their three ranges of sizes: 8 ft. to 14 ft., 7 ft. to 13 ft., and 5 ft. to 9 ft.—higher stories are shored with Roos Extension Shores.

ROOS COLUMN CLAMPS SAVE TIME AND MONEY

Columns are *quickly* formed with the Roos Clamp because it is impossible to put them on wrong and there are no loose parts to become lost . . . a hammer is the only tool needed to tighten.

Rooshors and Roos Column Clamps are available for rental from warehouse stocks in principal cities from coast to coast—for prompt service.

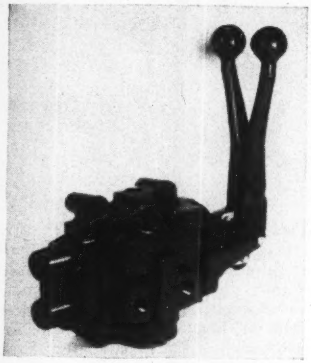
Write today for Bulletin 351

BAKER-ROOS, INC.
602 WEST McCARTY STREET
INDIANAPOLIS 6, INDIANA

"Gunite"® . . . . . the sand-cement product of the "CEMENT GUN," for Concrete and Masonry Repairs, Pre-Stressed Tanks, Steel Encasement and for lining Reservoirs, Sewers and Tunnels.

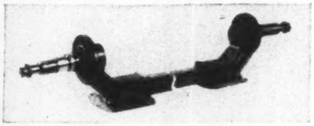
CEMENT GUN COMPANY
"GUNITE" CONTRACTORS
GENERAL OFFICES—ALLENTOWN, PENNA., U.S.A.
MANUFACTURERS OF THE "CEMENT GUN"

lic-tilting arrangement permits mixer to be located low saving headroom while allowing sufficient height for direct discharge into delivery equipment. Separate power source is required. The Supremix plant allows two lines of traffic—one for central mixing; the other for dry batching—using the same scale and batching facilities. Operator locates in front of the mixer where he can see all functions, weigh all materials, note charging of mixer, check consistency, make necessary corrections, and see and check all delivery equipment before loading.—SUPREMIX, INC., AFFILIATE OF GENE OLSEN CORP., ADRIAN, MICH.



Hydraulic control valve

Designed for smooth operation and accurate, responsive control, these valves are of the open-center double-spool type. They are offered in 3-way, 4-way, or combination styles, and may be used for single- or double-acting cylinders not required to operate at the same time. Operating pressure is up to 2,000 psi. Pressure drop through the open center is approximately 32 psi at rated capacity of 14 gpm. Flow rates to 20 gpm may be handled. Any port size to ¾-in. pipe size may be provided.—PARKER APPLIANCE CO., 17325 EUCLID AVE., CLEVELAND 12, OHIO.



Improved drop axle

Distance between spring center and track line on the Series 7129 drop axles has been reduced to less than 8 in. Underslung springs augment the axle's low center of gravity. The 4-in. drop made possible provides increased protection against overturning and injury to personnel and equipment. Spring pad eliminates possibility of

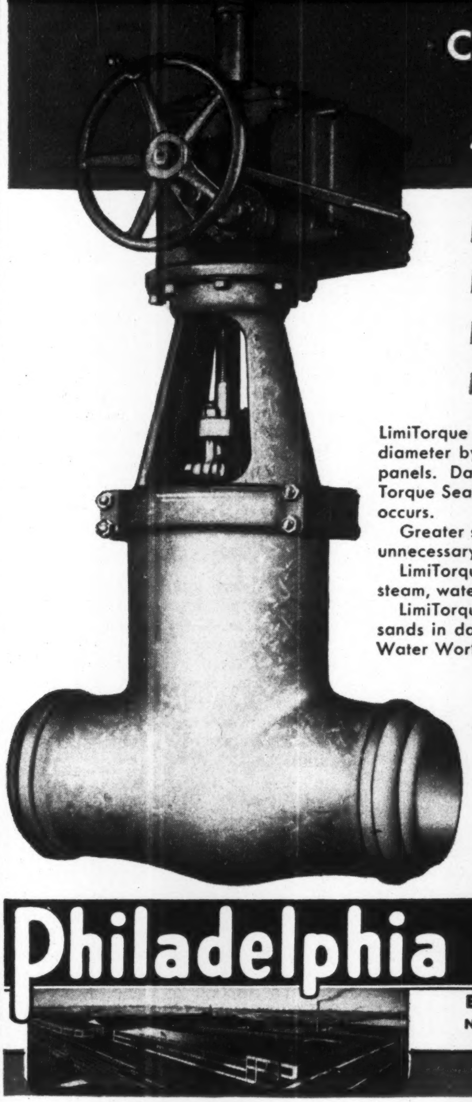
(*Continued on page 94*)

ANY TYPE OF VALVE

any place, any time, by any power-source available

CAN BE OPERATED BY

Limitorque



- ✓ **INSTANTLY**
- ✓ **ACCURATELY**
- ✓ **SAFELY**
- ✓ **DEPENDABLY**

LimiTorque opens and closes valves of all makes and types up to 96" diameter by the "push of a button" from either remote or nearby control panels. Damage to stem, seat, disc, gate or plug is prevented because the Torque Seating Switch *limits the torque*, shuts off the motor if an obstruction occurs.

Greater safety is afforded workmen by LimiTorque Remote Control as it is unnecessary to go to high, low or dangerous locations for manual operation.

LimiTorque may be actuated by any available power source . . . electricity, steam, water, gas, oil or air.

LimiTorque Controls are obtainable through valve manufacturers. Thousands in daily use on land and sea . . . in Power Plants, Central Stations, Water Works, Refineries, and Oil Pipe Lines.

For full details . . .
write for Catalog L-50
— please use your
Business Letterhead.

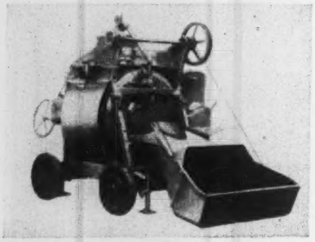
IMITORQUE
CONTROL

Philadelphia Gear Works, INC.

ERIE AVE. AND G ST., PHILADELPHIA 34, PA.
NEW YORK • PITTSBURGH • CHICAGO • HOUSTON
IN CANADA: WILLIAM AND J. G. GREEY LIMITED, TORONTO

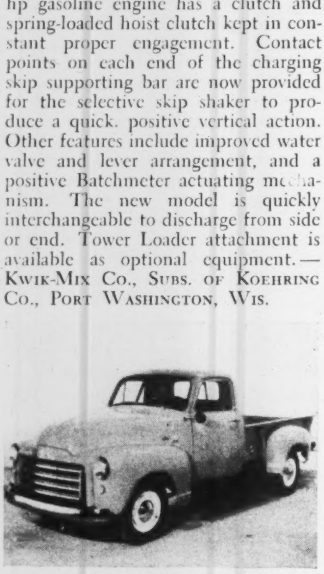
Industrial Gears and Speed Reducers
LimiTorque Valve Controls

spring shift. The Caravan axle is capable of supporting loads of 4,000 or 5,000 lb, depending upon beam diameter. Brake flange is machined to receive 12-in. mechanical or electric brakes.—United Mfg. Co., 47 W. Interstate St., Bedford, Ohio.



Heavy-duty mixer

Improved 16-S 3-bag mixer features heavier frame sections, coil-spring mounting, and cast-steel drum heads having machined roller paths. The 27-hp gasoline engine has a clutch and spring-loaded hoist clutch kept in constant proper engagement. Contact points on each end of the charging skip supporting bar are now provided for the selective skip shaker to produce a quick, positive vertical action. Other features include improved water valve and lever arrangement, and a positive Batchmeter actuating mechanism. The new model is quickly interchangeable to discharge from side or end. Tower Loader attachment is available as optional equipment.—Kwik-Mix Co., Subs. of Koehring Co., Port Washington, Wis.



GMC trucks for '51

Light trucks in the 1951 GMC line range in gross vehicle weights from 4,800 to 16,000 lb. Horsepower has been stepped up from 96 to 100 on the 228 engine, and from 110 to 114 on the 248. Valve lifters have been changed to 2-piece type to provide better high-speed operation. Pistons are medium-duty lightweight aluminum with deep-wall top rings. Hand brake is installed on the rear of the transmission. Cabs are re-designed for maximum operator comfort and safety.—GMC Truck & Coach Div., General Motors Corp., 660 South Blvd., E. Pontiac 11, Mich.

MANUFACTURERS' PUBLICATIONS

Concrete vibrators; screeds—Gasoline and electric-powered vibrators and screeds are described in Bulletin 507. This bulletin details advantages of vibration in concrete work; recommends specific types of vibrators for specific jobs; and contains a complete listing of available vibrator accessories.—Stow Mfg. Co., 57 Shear St., Binghamton, N. Y.

Tractor equipment—Complete line of attachments for International tractors is described in this Isaacson catalog. Items listed include: hydraulic and cable Trac-Dozers, front and rear Kable control units, Kable Karry-Skrapers, Hydro-Skrapers, Winchoists, Karry-Arches, Karry-Karts, Klearing blades, hydraulic or cable Super-Rooters, and Fas-Tamp rollers. Each item is described in detail, accompanied by photographs showing it in use. Complete lists of specifications cover the various sizes in which each is available.—Isaacson Iron Works, Rockford, Ill.

Conveyor and elevator belting—Information bulletin (16 pp) covers all types of conveyor and elevator belting. It contains a discussion of each of the various types of belting and suggestions for their application. Bulletin 3679 is complete with all necessary tables, charts, and formulas for selection of the right type of belt for any application. — Thermoid Co., Trenton, N. J.

Safety belts—Complete line of safety belts is described in this 4-p bulletin. The catalog contains information and facts of belts for all types of service. The bulletin discusses the various materials from which belts are manufactured, and special accessory equipment.—Mine Safety Appliances Co., Braddock, Thomas & Meade Sts., Pittsburgh 8, Pa.

Hard metal castings — Use of hard metal castings for parts subjected to severe abrasion, corrosion, or impact is discussed in this 16-p informative booklet. The booklet discusses the preparation of Stoody castings; the type of castings available; identification of Stoody castings; and information on ordering. The remainder of the catalog contains illustrations of various castings accompanied by a brief description of what it is, recommended applications, dimensions, and approximate cost.—Stoody Co., Whittier, Calif.

Power-shovel catalogs—Two bulletins are available from Thew. One describes the use of Thew-Lorain cranes and shovels in pipeline construction; the other, discusses the use of cranes in industrial material handling. Both are thoroughly illustrated with on-the-job photographs. Specially designed equipment for specific purposes are described in detail.—The Thew Shovel Co., Lorain, Ohio.

Timber designs—Four catalogs on timber structures have been made available by the Timber Engineering Co. One describes 23 garden apartment designs for military housing, suburban apartments, and low-cost public housing. It features reproductions of prize-winning designs. The second publication, an illustrated 16-p brochure, presents a concise recital of factual accomplishments in timber progress through wood research for national defense and industry. The other two booklets deal with the design of recreation buildings and churches.—Timber Engineering Co., 1319 Eighteenth St., N. W., Washington 6, D. C.

Hose catalog—Revised and more complete edition covers a line of reusable steel hose ends and industrial hose. Catalog H-1451-A covers additional sizes of hose couplings in the medium, medium high, and high-pressure types. Also included is complete technical information regarding Weatherhead SAE 37 deg and 45-deg flare adapters. The Weatherhead Co., Industrial Sales Div., 300 E. 131st St., Cleveland 8, Ohio.

Movable steel interiors—Booklet (16 pp) illustrates, describes, and lists advantages claimed for Hauserman movable steel interiors. It shows how they may be adapted to new buildings as well as those now in use. Numerous photographs in full color show typical installations.—The E. F. Hauserman Co., 6923 Grant Ave., Cleveland 5, Ohio.

Water; waste treatment — Technical Supplement FL (8 pp) describes the Flocsettler water and waste-treatment unit. Illustrations and detailed data explain how this unit combines: Mixing and slurry blending; flocculation and softening; slurry recirculation and slurry blanket; settling and sludge concentration; and positive sludge removal. The bulletin also includes general data on reaction of chemicals; computation of chemical requirements in connection with lime dosage, soda ash dosage, and coagulant dosage; and conversion factors.—The American Well Works, Aurora, Ill.

ADVERTISERS IN THIS ISSUE

Acker Drill Company 70
Albert Pipe Supply Company 68
American Steel Dredge Co., Inc. 64
Autolene Lubricants Co. 4, 5

Baker-Roos, Inc. 92
Baxter Co., J. H. 87
Bethlehem Steel Co. 1
Borden Metal Products 46
Butler Mfg. Co. 89

Cement Gun Co. 92
Chevrolet Motor Div., G. M. C. 20
Clyde Iron Works, Inc. 22
Commercial Shearing & Stamping Co. 70
Construction Machinery Co. 54
Cook Bros. Equipment Co. 62

Deming Co., The 57

Earle Gear & Machine Co. 68
Economy Pumps, Inc. 16
Electric Steel Foundry 11
Electric Tamper & Equipment Co. 54

Faber-Castell Pencil Co., A. W. 50
Foote Co., Div. Blaw-Knox Co. 12, 13
Ford Motor Co. .... 4th Cover
Fort Pitt Bridge Works 15

Galion Allsteel Body Company 91
General Electric Co. .... 2nd Cover
Griffin Wellpoint Corporation 95
Gulf Refining Co. 6
Gunite Concrete & Construction Co. 64
Gurley, W. & L. E. 90

Hetherington & Berner, Inc. 64

Indiana Gunite & Construction Co., Inc. 66
Irvington Form & Tank Corp. 95

Kinnear Mfg. Co. 67
Krueper Co., H. J. 65

LeTourneau, Inc., R. G. 8, 9
Leupold & Stevens Instruments, Inc. 53

Macomber, Inc. 18
Maxon Construction Co., Dumpcrete Division 71
McGraw-Hill Book Company 55
McKiernan-Terry Corp. 52
Mesker Steel Corp., George L. 52
Minneapolis-Moline 56
Mixermobile Mfg. Co. 88
Moretrench Corp. 59
Morin Mfg. Co. 84
Morris-Machine Works 10

Nelson Stud Welding Div., Morton Gregory Corp. 61

Omega Machine Co. 37

Permutit Co., The 45
Philadelphia Gear Works 93
Phoenix Bridge Co. 63
Pittsburgh-Des Moines Steel Co. 67
Posey Iron Works, Inc. 86

Quay Industries 59

Raymond Concrete Pile Corp. .... 3rd Cover
Ric-Wil Company 3
Riddell Corp., W. A. 58
Rockford Clutch Div., Borg-Warner 66

Sauerman Bros., Inc. 65
Schield Bantam Co. 14
Smith Engineering Works 85
Sparling Meter Co. 63
Sprague & Henwood, Inc. 66
Superior Concrete Accessories 38

Trailer Village, Inc. 63
Turner-Halsey Co. 7

Union Metal Mfg. Co. 49

Viber Co. 69

Wild Surveying Instruments of America, Inc., Henry 2

Yeomans Brothers Co. 51

Professional Services 81, 82, 83

SEARCHLIGHT SECTION
(Classified Advertising)

Employment
  Positions Vacant 75, 76
  Selling Opportunities Offered 75
Positions Wanted
  Part Time Work 77
  Employment Services 77
Special Services
  Contract Work 77
Educational
  Schools 77
Business Opportunities
  Offered 77
Notices
  Proposals 72, 73, 74
Equipment
  (Used or Surplus New)
  For Sale 77-81
  Piling 79
  Pipe 80
  Rail 80
  Surveying Instruments 77
Wanted
  Equipment 77

ENGINEERING NEWS-RECORD

E. E. Weyeneth, *Manager* — Howard T. Olsen, *Business Manager*

Sales Representatives: D. S. Robertson and E. A. Callahan, Jr., 330 W. 42nd St., *New York;* Fred G. Hudson, L. H. Hunt, W. G. Payne, 520 N. Michigan Ave., *Chicago;* J. W. Otterson, R. Dorland, 68 Post St., *San Francisco;* A. B. Cozzens, 17th & Sansom Streets, *Philadelphia;* E. E. Duff, Jr., Hanna Bldg., *Cleveland;* B. F. Horn, Penobscot Bldg., *Detroit;* W. E. Donnell, Continental Bldg., *St. Louis;* H. L. Keeler, 1111 Wilshire Bldg., *Los Angeles;* Ralph Maultsby, Rhodes-Haverty Bldg., *Atlanta;* J. H. Allen, First National Bank Bldg., *Dallas.* *Other Sales Offices:* 738-39 Oliver Bldg., *Pittsburgh;* 1427 Statler Bldg., *Boston;* Aldwych House, *London.*

The Same Atlas Speed Form Units
Walls
Floors
Columns
Manholes
did all these jobs:
Save with versatile
Circular Tanks

ATLAS SPEED FORMS

Do a variety of jobs with the same Atlas unit. You save on Cost of Forms and Form Labor everytime! Send coupon for proof.

IRVINGTON FORM & TANK CORP.
Irvington, 19 N. Y.

Send more information. I am interested in forms for________
Name________
Firm________
Address________

wet job?
FREE HANDBOOK

GRIFFIN has dried thousands of them! Our **WELLPOINT SYSTEMS** and know-how let you "work dry"—at lower cost!

BE SURE: Let us estimate dewatering costs for your next job.

GRIFFIN WELLPOINT CORPORATION
881 East 141st Street, New York 54, N. Y
Please send me free copy of "WELLPOINT SYSTEM in Principle and Practice."
Name........
Title........
Firm........
Address........

Clip this coupon to your letterhead. FREE to Engineers and Contractors, only. Regular price to all others, $1.50.

Letter from CALIFORNIA

Dear Boss:

The other day I went to Sacramento where I attended the House Public Lands subcommittee's three-day hearing on flood damage in California.

Fresh in the mind of everyone was, of course, the November flood (ENR Nov. 30, p. 25).

• **Everybody in the act**—Bureau of Reclamation spokesmen were quick to point out the benefits of their completed works. The Corps of Engineers, which rushed in with emergency crews, also rushed in with some quick figuring to show the storm would have done practically no damage, had all their authorized projects been completed. The Pacific Gas & Electric Co. called attention to the storage benefits of its many hydroelectric dams.

A wave of meetings also flooded the Central Valley, where local folk made plans and demanded action.

Over in San Francisco, retired State Engineer Edward Hyatt made a speech in which he said, "what the valley needs quickly is dams—but we won't get them until the squabbles between the Army Engineers and the Bureau of Reclamation have ended."

And, to top off the background for the hearings, the chief of the Corps, Major General Lewis A. Pick, made a quick flight to California at the request of Governor Earl Warren to survey the situation and confer with local engineers and officials. The General said: "We've got to stop this great destruction" and indicated that if Congress made $295,000,000 available in the next five years, the Corps could do just that. However, the General got out of Sacramento the day before the hearings started so I didn't get to see him. Neither did the committee.

• **Local man heads group**—The man who sat as chairman at Sacramento was Rep. Claire Engle, Calif. Democrat. With him was another Californian, a Nevadan, and an easterner.

But the hearings became a challenge to water-conscious Californians. The lines of purpose and the schisms of philosophies are deep cut out here—deep as the Sierra canyons, and a chance to "get it into the record" couldn't be missed.

Chairman Engle pointed out at the start that the hearing was to survey flood damage and get some facts on flood control. But you can't talk flood control in California—unless you want to talk irrigation and power too. It wasn't long before the teams were lining up behind the bureau and the corps.

• **The wash gets done**—There was a lot of dirty laundry sloshed around in the receding flood waters. The witnesses ranged from farmers with an acre to Gov. Warren, and in between were chambers of commerce, the big farmers, the Grange, private power companies, irrigation districts, the Bureau, the Corps, etc.

The committee members sometimes exhibited definite feelings too. Such was the case when Rep. Norris Poulson, Republican from Los Angeles, asked Richard Boke, head of the bureau's Region Two, if he was trying to rule people or serve people.

It was pretty much agreed that if California was going to get funds from the appropriation committee their delegation would have to be in agreement on just what was wanted. Hence Engle was trying to get statements of what the groups would settle for if they couldn't get everything they wanted.

There didn't seem to be much doubt in anyone's mind but that federal funds for California's dams had been slowed down by controversy. That ugly word "lobbying" kept popping up. So did such words as "the private power trusts" and "socialism." I could sense little, if any, desire for mediation, or for getting together on some middle ground.

• **And water rights**—Also when you talk water in California, you've got to talk about the rights to the water. Seems that although several Bureau water contracts exist and were voted for by large majorities (they say anybody will vote "yes" if you dangle before them an acre ft., the present contracts are n.g., illegal, or something. Anyway, I think you can count on legislation being introduced in Congress in an attempt to make everyone contract happy. A clear-cut right of renewal will be a feature.

• **One group agrees**—The testimony of one group didn't follow what I've just said about lack of agreement among local factions. And the outcome of their recommendations is going to be very interesting when and if they get to the appropriations committee.

It sounded good. It sounded as if the hatchet had been buried in the mud that washed into the streets of Reno. But a slight problem occurred to me that hadn't been mentioned, so I arranged to talk to one of the delegation at lunch time. What happens to the power? The Sierra Pacific buys the water ABOVE the power house.

Now boss, I can't see the bureau letting this get by when a request is made in Congress. So they'll want at least to generate and sell the power, may be even distribute it. Then in will step the private power spokesman —and away we go again.

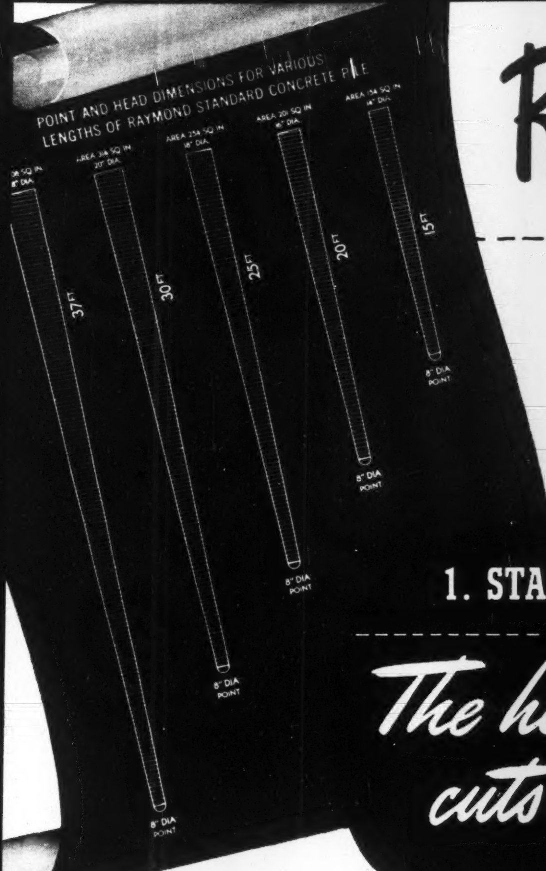
Sincerely . . . . .

CAUSE OF IT ALL—The flood strikes Marysville, Calif., just one of the towns hit recently when the San Joaquin and Sacramento rivers overflowed their banks and raised the issue of flood control from the level of theory to the level of politics.

Raymond MAKES 5 TYPES OF CONCRETE PILES

1. STANDARD
2. STEP-TAPER
3. PIPE STEP-TAPER
4. COMPOSITE
5. GOW CAISSONS

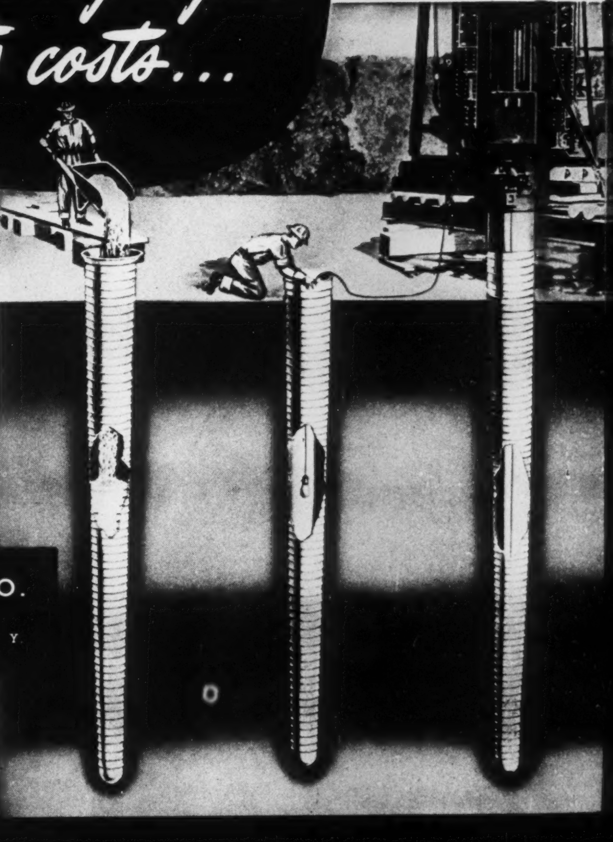
Raymond installs every type of pile: cast-in-place concrete, precast concrete, steel pipe, wood and H-beam. Raymond operations include underpinning, borings and soil investigations, waterfront construction and harbor and river improvements, and cement mortar lining of oil and water pipe lines 4" to 144" in diameter by the Centriline Corporation, a Raymond subsidiary.


POINT AND HEAD DIMENSIONS FOR VARIOUS LENGTHS OF RAYMOND STANDARD CONCRETE PILE
SQ IN
DIA
37 FT
8" DIA POINT
AREA 314 SQ IN
20" DIA
30 FT
8" DIA POINT
AREA 254 SQ IN
18" DIA
25 FT
8" DIA POINT
AREA 201 SQ IN
16" DIA
20 FT
8" DIA POINT
AREA 154 SQ IN
14" DIA
15 FT
8" DIA POINT

1. STANDARD PILES

The heavy taper cuts costs...

Note that the permanent steel shell maintains the soil pressure developed during driving and while the concrete is setting, thus insuring a perfect pile free from distortion with a high load capacity.



Raymond Standard Concrete Piles have a heavy, uniformly tapered permanent steel shell. On friction piles, this taper acts like a wedge, giving these specific advantages:

1. Driving resistance is maintained.
2. The load is transmitted to the soil through the entire length of the pile.
3. The load can be carried by shorter piles, because of their greater carrying capacity.
4. Since shorter piles cost less to drive, the taper usually results in substantial savings.

Each of these statements has been tested and proved innumerable times. The evidence is at your disposal at any of our offices. Your inquiry is cordially invited.

AROUND THE WORLD
34 YEARS FOUNDED 1897 OF PROGRESS

Raymond CONCRETE PILE CO.
140 CEDAR ST., NEW YORK 6, N. Y.

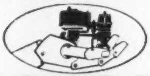
BRANCH OFFICES: Boston, Syracuse, Philadelphia, Baltimore, Washington, Pittsburgh, Atlanta, Miami, Houston, Kansas City, St. Louis, Cleveland, Chicago, Detroit, Portland, San Francisco, Oakland, Los Angeles and principal cities in Latin America.

Every truck operator in America should read the full story of the —

NEW FORD TRUCKS for '51

WITH

POWER PILOT



ECONOMY

FORD'S STEP-AHEAD ENGINEERING achieves new economy, new performance. There's a new economy-engineered Ford Truck for your job, or any job. Over 180 models, 95-h.p. Pickups to 145-h.p. BIG JOBS.

Send COUPON today for "WHY IT'S IMPORTANT TO YOU"

The facts on what the proven Ford Truck Power Pilot is, how it saves you money, how it is different from conventional systems, etc., need more space than we have here.

So does all the news about new 5-STAR Cab comfort, new transmissions, new axle ratios, new pistons and camshafts . . . the new features throughout the Ford Truck line for '51.

But these are all facts that can mean real dollar savings to *you*. Mail the attached coupon today.

Ford Trucking Costs Less Because—

FORD TRUCKS LAST LONGER!

Using latest registration data on 6,592,000 trucks, life insurance experts prove that Ford Trucks last longer!

FREE Send me without cost or obligation, the interesting new leaflet giving full facts on the "Power Pilot," plus specification data on the NEW Ford Trucks for '51 indicated below:

FORD Division of FORD MOTOR COMPANY
3255 Schaefer Rd., Dearborn, Mich.

FULL LINE ☐ HEAVY DUTY MODELS ☐
LIGHT MODELS ☐ EXTRA HEAVY DUTY MODELS ☐

Name______________________________
(Please print plainly)

Address____________________________

City________________ Zone_____ State_______